Amateur Radio

Volume 82
Number 5
May 2014
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WIRELESS INSTITUTE OF AUSTRALIA

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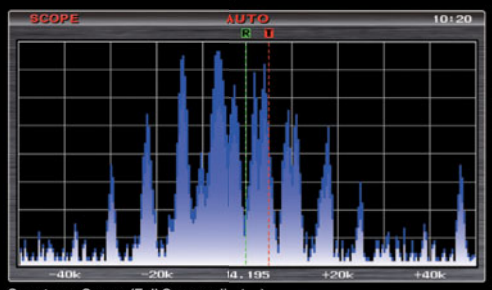

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This month's cover
The FT5ZM team on Amsterdam Island. See the story of this DXpedition commencing on page 6. Composite image created by Sergio Fontana VK3SFG. Original photos by Nodir Tursoon-Zadeh EY8MM.

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Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are welcome and will be considered for publication. Articles attached to email are especially welcome. The WIA cannot be responsible for loss or damage to any material. Information on house style is available from the Editor.

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Editorial

Peter Freeman VK3PF

Last chance

Now is your last chance to register for the 2014 WIA **Annual Conference**, to be held on the Sunshine Coast on May 16, 17 and 18. Details can be found on the WIA web site, with the program following the established format of a social event on Friday evening, the Annual General Meeting and Open Forum on Saturday morning and a Technical Symposium on Saturday afternoon, the Annual Dinner on Saturday evening. There is an Alternate Program for Saturday for those who do not wish to participate in the amateur radio program. Sunday comprises some visits of both general and technical interest, plus a barbeque at the Sunshine Coast Amateur Radio Club for those able to attend.

You can register on line at the WIA web site and also find useful links to accommodation options and other services. Local WIA members can of course simply attend on the day for the AGM and Open Forum, but should not expect to be able to partake of meals.

If you have not yet registered and are considering attending, **now** is the time to complete that task.

Given class timetables at my paid work, it looks as if I will not be able to make it this year. Unfortunately, longer travel distances do not fit in with a full time job, especially when you have restrictions on when you can take leave. Such is life.

SOTA and portable operations booming

As you can read in the SOTA column this month, SOTA activity is booming. This is perhaps best demonstrated by the efforts of Amanda VK3FQSO, who has reached Shack Sloth status in only three months, having commenced chasing at the start of this year. Well done Amanda!

All SOTA Chasers are rapidly increasing their scores. There have been a number of stations out activating National Parks in VK3 and elsewhere. In VK3, the far eastern parks seem to lacking in activations, which is not surprising given the long travel times required by activators. Several SOTA activators in VK2 have retreated from summits given local weather conditions, but have activated National Parks when the weather allowed.

As this Editorial is being prepared, reports are coming in from the first anniversary activation weekend celebrating the South Australian National and Conservation Parks Award. Paul VK3PAS, the Award officer, reports that preliminary information indicated that there were a total of 28 park operators, and 93 park activations (78 unique parks). At the time of preparations of this report, around 70 % of the activators had submitted reports, with 1,800 QSOs reported to date. Of significance was the number of SOTA to Parks contacts. Many VK5 operators commented on being called by SOTA operators. As a SOTA activator out on Sunday, I was pleased to be called by VK5 parks activators and also made an effort to chase VK5 parks activations. It was a fun weekend for all involved in either activating or chasing. I am sure that Paul will be busy preparing Award certificates for some time to come!

Continued on page 5

WIA comment

Phil Wait VK2ASD

A $30 membership fee? Simple!.... or, is it?

Generally, the membership fee increase announced in February seems to have been received rather better than we could have expected. We have received only a handful of negative comments at the WIA, and quite a few supportive ones.

Many people have shown strong support for the WIA's advocacy role with the ACMA etc., and it is true that our political system works by limiting the number of actors, so a representative organisation like the WIA has greater political power than the sum of its members would have by acting individually.

So, let me address some of the comments received about the financial position of the WIA and its membership fees

As Directors of the company, a primary responsibility of the WIA Board to the members is to ensure the on-going financial viability of the organisation. For several years, the WIA has been running at a small loss, and continued to do so through 2013.

Last year, we postponed introducing a membership fee increase, instead preferring to concentrate on reducing costs in a number of areas, including staff costs, Directors' travel expenses, and by postponing the Club Grants scheme. However, other costs, especially those associated with the printing and distribution of *AR* magazine, and general expenses such as electricity etc., continued to increase, as they did for everybody else.

Looking back on 2013, if we did not achieve the savings that we did, the trading position of the WIA would now look a lot worse, probably with a loss for the year of around $20,000-$30,000

Regardless of making losses for the past few years, the WIA is in a very strong financial position, with nett assets amounting to much more than a full year's business turnover. The detailed figures will be in the WIA's financial report, which will shortly be available to members, but there is no doubt that (as far as the balance sheet is concerned) the WIA is in a very enviable financial position compared to most small organisations.

The problem we face is that costs are still increasing and the easy savings have now all been made. If we did nothing more, the small losses would eventually grow and eat into the reserves, and in not too many years' time, the WIA could find itself with no assets left or, even worse, could find itself trading insolvently. That is an unthinkable position for the WIA, but companies that fail to address recurring losses can find themselves in hot water very quickly, not only financially, but legally.

Some people try to compare the WIA to the RSGB or the ARRL and ask why our fee structure cannot be the same, although a careful analysis after allowing for the exchange rates and comparing like with like, will show they are not too different. In addition, both those organisations benefit from a very large home amateur population which, in addition to providing higher member numbers, has allowed them to build very significant publishing businesses. In many ways, these organisations are significant publishing businesses which support a membership organisation.

So, how do we ensure a viable future for the WIA

The very best way to ensure the future for the WIA is to increase membership, but WIA membership has for many years been stuck around 30% of the total amateur population. Although this sounds low, when you take into account the number of inactive amateurs who have no reason to be a member, it's probably a much higher penetration of the available market

The WIA Board has committed to find and implement a persuasive way (or ways) to retain existing members, while recruiting new ones, as it requires only relatively small numbers to make a significant difference, which builds over time.

From time to time, we hear the suggestion that WIA membership should somehow be linked to the ACMA amateur licence fee – that is, the licence fee and WIA membership would be paid together, and WIA membership would then only need to be about $30 or so, about one-third what it is now. I understand that this would be contrary to the ACMA's charter and is certainly not within its policies and practices. In addition, it would be contrary to Section 47 of the Trade Practices Act, which prohibits what is known as "third line forcing". The classic third line forcing scenario occurs where a supplier requires ("forces") the purchase of a second product or service from

Continued on page 5

WIA news

WIA Annual Election 2014

The voting for the election of three Directors was conducted during the month of March 2014. The Ballot paper formed part of the *AR* address sheet, an envelope for the ballot paper and a reply paid envelope and all were included in the *AR* WIA member circulation.

1102 reply paid envelopes were received by the closing of the postal ballot last mail on the 28 March 2014.

Included in the reply paid envelope with the ballot envelope were 61 completed survey sheets. These have been passed to the survey coordinator. It should be noted that the inclusion of other correspondence could delay action of that document.

A further four survey sheets were included in the small ballot envelope, but no ballot paper was found.

One survey form was returned in the reply paid envelope without any other paperwork.

Eight reply paid envelopes were deemed invalid as the senders had not completed the required identification on the envelope, so their entitlement to vote could not be validated.

There were a further seven invalid ballot papers as either all names or no names had been marked to indicate a valid vote. The use of numbers, 1, 2, 3 is also invalid.

The results of the election are:
Bob Bristow VK6POP - 579
Chris Platt VK5CP - 795
Rowan Dollar VK2ELF - 662
Phil Wait VK2ASD - 798

Thank you to all who voted, about a quarter of the total membership, and thank you to the candidates for making yourselves available to serve the WIA membership and amateur radio.

I declare the above results to be an accurate presentation and record of the ballots received. I therefore declare Chris Platt VK5CP, Rowan Dollar VK2ELF and Phil Wait VK2ASD to be elected as Directors of the WIA.

Geoff Atkinson VK3TL
WIA Returning Officer

2015 ANZAC Commemoration

The WIA Board is in the planning phase for radio activities to commemorate the 100th year since Australian and New Zealand (ANZAC) Forces landed at Gallipoli. Events will commence on April 25th 2015 and will continue throughout the year until the 20th December 2015, the date when the last ANZAC forces were extracted from the Gallipoli Peninsula. The activities will involve Australia, New Zealand and Turkey and likely some the other Commonwealth countries that were involved in the Gallipoli campaign.

There are strong linkages between amateur radio and the ANZAC tradition. Many radio amateurs served their country as communications specialists and signallers, from the very early years of radio to the present day. The WIA intends to provide as much opportunity as possible for all amateurs, especially our veteran amateurs, to take part in the commemoration.

The Department of Veteran Affairs has given permission for the WIA to use the ANZAC name in special event amateur callsigns between the two dates, and the ACMA is expected to issue the WIA with licences and callsigns, for use nationally, and in each State and Territory. Additionally, the WIA's Historian, Peter Wolfendon, is preparing a series of historical articles and press releases for use prior to and during the event, which are intended to give a historical perspective of the contribution by Australian radio amateurs in the armed forces. Peter is very keen to hear from any amateurs who have served themselves, or have knowledge about radio amateurs who serviced in the early conflicts.

Australian medium wave beacon heard nationwide

The VK3FI CW beacon on 473 kHz at Mildura in northwest Victoria has many reception reports from all over Australia since early this year and will continue its transmissions. The most distant reports have been from West Australia VK6. Is it also heard in New Zealand? The ZL stations have begun listening for it and expect conditions to improve during the southern hemisphere winter.

Some overseas inquiries have been received asking when it will be on different weak modes, but the intention is to continue the experiment with the home-brew beacon on CW, for a little while yet. While reports are most welcome, including those who have reception at different times or days, many more are needed.

The band 472-479 kHz is now a secondary allocation in many countries. The beacon encourages use of the new band. A couple of VKs have advised that they are now gearing up for reception. In Queensland, John Goldfinch VK4FNQ east of Charters Towers was the first from that state to report, followed by Rick Freemantle VK4RF, north of Brisbane, and Dougal Johnston VK4EKA near Toowoomba who recorded reception during lightning activity.

Among those in South Australia is Ian Maxted VK5ZIM at Adelaide. In West Australia Phil Hartwell VK6GX was first to provide a reception report. He was followed by Peter Zwarecz VK6APZ on a 350 metre long wire at fence height, and then came Derek Zeck VK6DZ.

Noel VK3FI is amazed that his beacon has been heard from VK6 at an average distance of 2400 km, and as we experience the winter season with longer nights and less lightning activity, reception conditions should improve. He now has hopes that spurred on by reception reports throughout Australia, the beacon will be detected across the ditch in New Zealand. Crossing the Tasman Sea would be quite an achievement and is now an aim of Noel VK3FI.

The CW beacon on 473 kHz is on most nights 1100 to 2200 UTC. Reception reports please on email to *vk3fi@wia.org.au*

Editorial

Continued from page 2

This raises a question that I raised in an Editorial some time ago. We now have the Keith Roget Memorial National Parks Award for VK3, and the South Australia National & Conservation Parks Award for VK5. There is also the VKFF Awards scheme, compatible with the WWFF award scheme, which recognises National Parks activity in many of our parks across the country. These two latter schemes are based on rules established in Europe, without much, if any, input from locals in VK. There are strict requirements for these two award schemes.

Given the existing awards in VK3 and VK5, should we establish compatible award schemes promoting portable operations in the other states and territories? All that is required is a keen individual, probably with the backing of a club, to prepare a set of rules. The rules would list the valid parks within the state/territory, and would hopefully be compatible with the VKFF/WWFF rules. If such state/territory awards were established in the manner suggested, then we could have several state/territory awards which could build towards VKFF and WWFF awards as well. If such awards were established, we would not need an additional national award, we could simply work in with the existing VKFF and WWFF award systems.

Hopefully, this will prompt some wider discussions.

Cheers,

Peter VK3PF

WIA comment

Continued from page 3

a nominated supplier – or, if the ACMA required membership of the WIA in order to obtain an amateur licence, as the suggested scenario would have it.

It has also been suggested that, if the WIA just dropped the membership fee to half of what it is now, then we'd easily double the membership! Leaving aside questions of "devaluing the WIA brand", the available size of the amateur radio market (i.e. total number of licensed amateurs and other interested persons) and the costs of promoting such a radical change, there's a fallacy in this thinking. In a perfect world, if we halved the membership fees and doubled the membership we would be in front, due to efficiencies achieved through running a larger organisation and printing more magazines. However, it is a very dangerous venture without any certainty that the membership would indeed double and, if that did not happen, the WIA could easily annihilate itself in the process.

Looking forward, one thing I would very much like to do is to improve the linkages and communications between the WIA and the Affiliated Clubs. I'm always surprised at how low WIA membership is in some WIA Affiliated clubs, possibly because people have the belief that they are, in some way, financially contributing to the WIA's advocacy work through being a member of the radio club, which, of course, is totally incorrect. I think there is a lot of opportunity here to improve WIA services and increase WIA membership.

There is a view that we could significantly reduce operating costs and lower membership fees, by making fundamental changes to the way the WIA works. At this time, the majority of the WIA's costs are associated with the printed magazine and two full-time office staff. As previously explained, significant savings could be made if we invested more heavily in IT, did away with the printed edition of *AR* magazine, and only provided on-line member service access without immediate telephone contact.

However, given the age profile of the radio amateur population, I would be very worried about the effect that would have. Many of our members enjoy receiving their monthly printed *AR* magazine and like to have somebody on the end of the phone to talk to at the WIA Office. Personal contact via the WIA Office is able to solve many problems and provide answers to issues as they arise, and the WIA Assessors, in particular, seem to rely quite heavily on day-to-day contact with the WIA Office – important to the on-going support of the Exam Service that is bringing new people into amateur radio.

So, it's not as simple as saying cheaper membership fees means more members. Although this may be correct in part, cheaper membership fees would also mean fewer, or at least very different, member services. As WIA President, I'm not confident that our membership would accept the magnitude of change and the radically different business model that would be required to reduce WIA membership fees to the levels some suggest (only a meerkat would say *"simples"* to that).

Naturally, there is always going to be a small number of amateurs who simply can't afford to be a member. It is unfortunate that there are so many who can afford it, but simply prefer to get a "free ride" to enjoy all the hard-won privileges of their licence at someone else's expense.

Phil Wait VK2ASD
President, WIA

FT5ZM Amsterdam Island DXpedition 2014 and the VK6 connection

Zeljko Krestelica VK6VY - krestelica@iinet.net.au

This year started exceptionally well for the world DX community. The long-awaited Amsterdam Island was on the air in January/February as planned. Many of us passionate DXers dream of being part of such an endeavour. This year, as a member of the local contest club, VK6ANC, I lived my dream although to a somewhat lesser degree than desired. Even so, it was a heart-warming and inspiring experience worthy of sharing with *AR* readers as it demonstrated that the amateur spirit is alive and kicking.

It all started some time ago

In order to achieve the highest possible standard for the planned expedition which the world DX community is accustomed to getting from the team of world top DXpeditioners, they were determined to have directional monoband antennas on all bands above 30 metres at both operating sites. That meant significantly increased transportation costs, but did not deter the team from taking a no-compromise approach. Good antennas require good towers. Rather than sourcing suitable towers in the US and transporting them to Amsterdam Island via New Zealand with the rest of the massive cargo of equipment, the team decided to source the towers closer to the final destination. VK6 was the clear choice, and this is where VK6ANC's involvement started.

In early 2013, and in genuine amateur spirit, Alek VK6APK received a request for assistance from the FT5ZM team leader, Ralph K0IR. Alek knew where to go with such a request and approached VK6ANC. He did not need to ask twice. VK6ANC made available a number of suitable aluminium tower sections, and the club of which Alek is a member provided some of theirs.

Photo 1: One of two FT5ZM operating sites with Yagis and towers clearly visible. Photo courtesy of Nodir EY8MM.

Photo 2: In operating position. From left to right: Jorge HK1R; Craig K9CT; Neil VA7DX and Andy UA3AB. Photo courtesy of Nodir EY8MM.

Alek promptly and kindly organised manufacturing of required joiners for easy portable use – thanks Alek that was much appreciated. It was all ready to go before the FT5ZM team arrived in Perth.

Photo 3: FT5ZM team getting ready for departure from Fremantle port. Photo by VK6VY.

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Departure from Fremantle

Over two days, and well ahead of the final departure date, all team members arrived safely to Perth from various parts of the world. They were welcomed with sweltering 48 degrees Celsius and the acclaimed VK6 hospitality with a BBQ and beer. Braveheart arrived in Fremantle from New Zealand with valuable cargo on board, ready for yet another adventure.

I saw the team off when they left Fremantle port on 15 January on a nine day voyage to their final destination. Try to put yourself in the shoes of a child left behind by his family and you will get a glimpse of how I felt that day and why I am still recovering from the trauma sustained when they left without me on that sunny, and for me sad, January Wednesday afternoon. I would be in deep denial if I did not admit that the idea of sneaking onto Braveheart crossed my mind a number of times before the ship left the port.

On the way to Amsterdam Island, the team was on the air as VK6ZFM/MM and was able to log 6000 contacts during the nine day trip.

FT5ZM on the air

Conditions on almost all bands were excellent during the expedition. Amateurs all around the globe were able to work them on all bands, even on 160 m. For most of the time the FT5ZM signal was extremely strong in VK6. I listened to them from VK6ANC and was at times able to hear their signal 59+40 on 40 m, 20 m and 10 m, and rarely below 59 on other bands. I know a VK6 amateur who worked FT5ZM on 10 SSB with less than five watts with his FT-817 on the internal battery and the Miracle Ducker and Whip! FT5ZM was receiving admirable reports from amateurs around the world during massive and never-ending pile-ups. It was a great pleasure listening to those pile-ups although they were adding salt to my open wound and I found myself regretting that I did not sneak on that boat when I still had a chance.

Photo 4: Second operating site with Yagis and towers. Photo courtesy of Nodir EY8MM.

VK6ANC members were proud to see that our towers were part of the great success. The joy was immeasurable when we saw the first photos of the antennas and our towers on the FT5ZM webpage. Much to the pleasure of the expedition team members and the world DX community, the14 tireless and unstoppable men achieved 100,000 QSOs seven days before the planned closing down date. They left the island with almost 170,000 contacts in their logbook and lots of unforgettable memories.

Back to VK6

The team returned safely to Fremantle on Saturday, 22 February. When I met them they were in high spirit and had many stories to share. VK6ANC invited the team to join the club members for a BBQ the following evening at the club's

Photo 5: FT5ZM team with Amsterdam Island crew. Photo courtesy of Nodir EY8MM.

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Photo 7: French base settlement on Amsterdam Island. Photo courtesy of Nodir EY8MM.

Photo 8: Australian flag flying on Amsterdam Island attached to one of the towers VK6ANC provided. Photo courtesy of Ralph K0IR.

premises. The club organised mini bus transport to and from the club for all 14 members. A big thank you goes to Darby VK6FONC who organised and drove the mini bus; to Phil VK6IP for being a brilliant tour guide; to Keith VK6RK and his team who cooked delicious steaks and to Wayne VK6EH and his crew for the background work and for coordinating all the activities in preparation for the big night.

Master photographer, Nodir EY8MM kindly compiled a photo presentation for us from his collection of over 800 photos he skilfully shot during the expedition. The team told us many exciting and engaging stories from the expedition. They did not spare nice words about the Braveheart crew and the beyond-all-expectations service and support they received from them, both on the boat and on the island. They were equally full of praise for the French hospitality and assistance received from the hosts. We all had a very enjoyable evening over a couple of beers, wine and friendly chat with our admired guests.

Farewell and call in again

In the following three days, all FT5ZM DXpeditioners left Perth, heading home to their families and loved ones. Thanks to Steve VK6IR and Onno VK6FLAB for organising and providing transfers from and to the airport, we appreciate your effort.

On behalf of VK6ANC, and for that matter the whole VK6 DX community, I would like to express our gratitude to the FT5ZM team for offering a spot on this world class DXpedition to VK6. Unfortunately, neither of the suitable candidates was able to join.

To the FT5ZM team we say congratulations for the well planned and executed DXpedition, well done guys, and thank you for sharing your stories with us. We feel very privileged to have been able to assist and to have had you with us in VK6. Farewell and call in again, sooner rather than later.

Beginner's Morse code

Rob Norman VK5SW

Morse code, also known as CW (continuous wave), has been around since the mid-1800s. The American Samuel Morse was a co-inventor of the code.

Now firstly, I would like to say that I am no expert when it comes to Morse code. I only have my own experiences to go by, which I am fortunate to have had over the past 40 odd years, since I obtained my amateur licence back in 1970. Learning Morse, for a lot of people, seems to be an unachievable goal but with determination and persistence it can become a reality for you. Each number and letter of the alphabet is represented by a series of dots and dashes, which can be more easily thought of as dits and dahs.

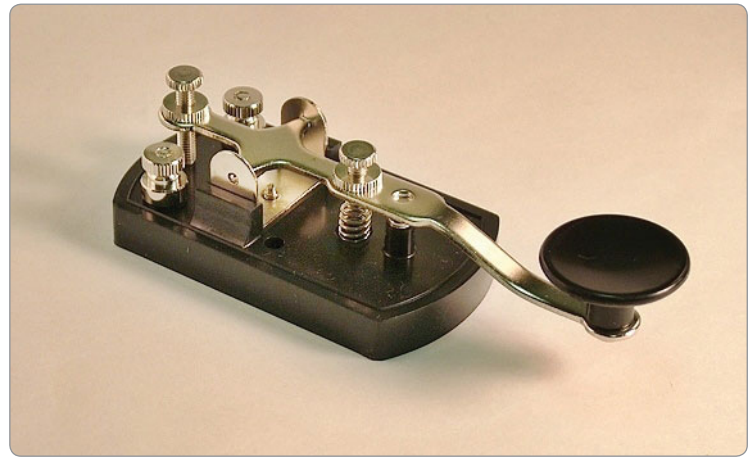

Photo 1: The hand (straight) key.

There are many ways to send Morse within amateur radio, from straight keys to computer keyboards. Most people learn to send Morse using a straight key. The lever is moved up and down using the thumb and the next two fingers. When connected to

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an oscillator, dits and dahs are generated manually.

The mechanical 'Bug', shown in Photo 2, sends dits and dahs by the operator pushing the handle in a sideways fashion. Because of spring tension, a stream of dits can be sent automatically and dahs manually. With practice, by manipulating the lever both to the right and left, the correct sequence of code is able to be sent. This is called a semi-automatic key (only the dits are automatic). The beauty of the bug is that less effort is required and it can be very rhythmical Morse that can be sent because the length of the dahs can be altered to produce the rhythm. Code sent by a bug can sound distinctive and after a time you can recognise the operator using a bug by their style of sending the code.

Electronic keyers (oscillators) produce near perfect wave forms of dits and dahs. The 'paddle' or key is plugged into the electronic keyer and manipulated sideways to regulate them. When in the rest position, no code is sent but when pushed to the right and left, a stream of dits and dahs respectively is sent. This is a fully automatic keyer.

The skill is in manipulating the paddle to produce the series of dits and dahs to correspond with the text you want to send. Practise will enable you to control the paddle. Higher speeds can be achieved by using an electronic keyer. Morse can also be sent by using a computer keyboard to type your message. When receiving code, it can be decoded and displayed on your computer screen when using suitable software such as MixW or MRP40, or similar.

Photo 3: The electronic keyer.

The internet can provide many resources to help you with learning Morse. The website Dxzone.com has many sites devoted to doing just that. Various methods are available to help you learn the code, for example, LCWO.net. This link can be particularly helpful – *www.arrl.org/learning-morse-code* To practise sending CW you will need a Morse code (audio) oscillator and a hand key which can be obtained from any amateur radio retailer, such as MFJ. You can build your own oscillator if you prefer.

As well as using suitable software on the internet, practise copying Morse by listening to your radio. The lower portions of the HF bands are where you will find amateurs chatting to each other using this mode of communication. Of course, many stations will be sending too fast for you to copy, but 80 metres of a night time is quite a good place to practise receiving. Quite often there are Morse nets on this band where amateurs send CW slowly so that beginners can improve their copying skills. Have a look at the WIA website to find out about these CW nets. Also, Sunday mornings on 40 metres is a good time and place to practise. The ARRL headquarters station W1AW also transmits Morse sessions to a regular schedule.

I think it pays to approach learning the code in a leisurely fashion. From memory I think it

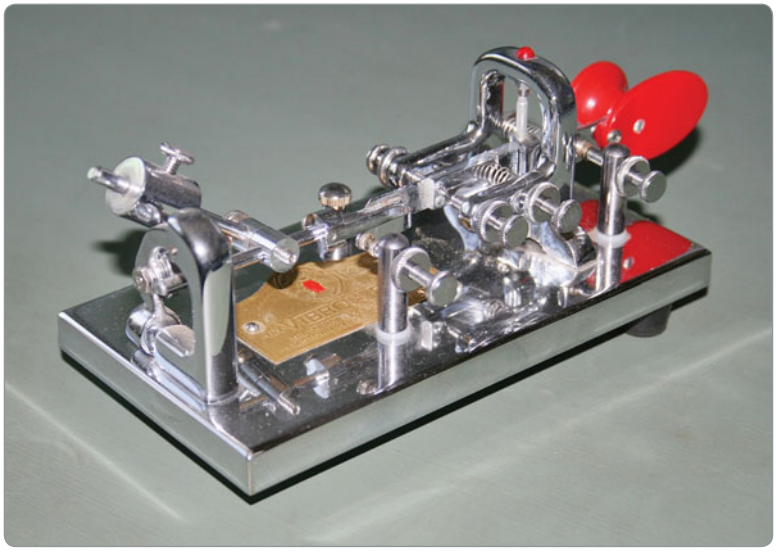
Photo 2: The 'Bug'.

Photo 4: Computer CW.

took me about six months to reach a point where I was reasonably proficient. I found as time went on there were moments where, for no apparent reason, my code speed seemed to suddenly increase but it was the accumulation of the work done that enabled the sudden increase to occur. But everyone is different. You will have to find what works for you, although the underlying principle still applies and that is 'practise makes for improvement.'

Photo 5: A typical Morse station set-up.

By the way, when the big day finally arrives and you are about to work a station for the very first time, just remember that it is normal to feel apprehensive about making mistakes. Mistakes with sending and mistakes with receiving. This is natural! Just persist and with time you will become a more confident and competent Morse code operator. Good luck!

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A networked, automatic and remotely controlled MF ATU

Dale Hughes VK1DSH

Our newest amateur band is merely 7 kHz wide. It covers 472 – 479 kHz and it's a challenging band for a number of reasons. A significant difficulty is that the wavelength is approximately 630 m; any antenna that an amateur is likely to use will be very short 'electrically' and therefore will require a very high Q if a reasonable transmission efficiency is to be achieved. Figure 1 shows the general arrangement of an antenna system that might be used on the 630 m band[1]; the loading coil (often called a variometer at MF) in conjunction with the antenna capacitance forms a resonant circuit that will have a very narrow operational bandwidth.

What affect might this narrow operating bandwidth have on your transmitter and radiated signal? Figure 2 shows the calculated phase response and impedance of a simulated MF antenna and measurements made on a real antenna of the style shown in Figure 1. The actual antenna is about 10 m high and 26 m long. It can be seen that the phase angle and antenna impedance change significantly across the band – even though it is only 7 kHz wide. This variation is enough to reduce transmission efficiency and affect transmitter loading if the operating frequency is very far from the resonance position.

Retuning the antenna is simple – just adjust the variometer to achieve resonance – unless the variometer is remote from the operating position… This was the genesis of this project; the variometer and matching transformer location was moved to a garden shed away from the operating position and it was inconvenient to have to go to the shed whenever a

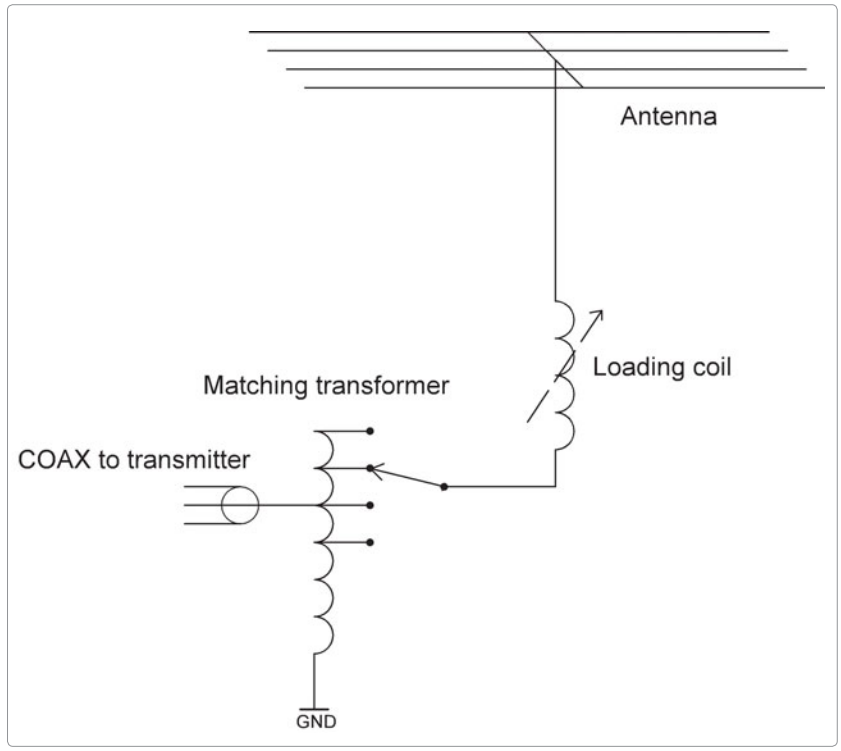


Figure 1: A schematic of a typical amateur MF antenna.

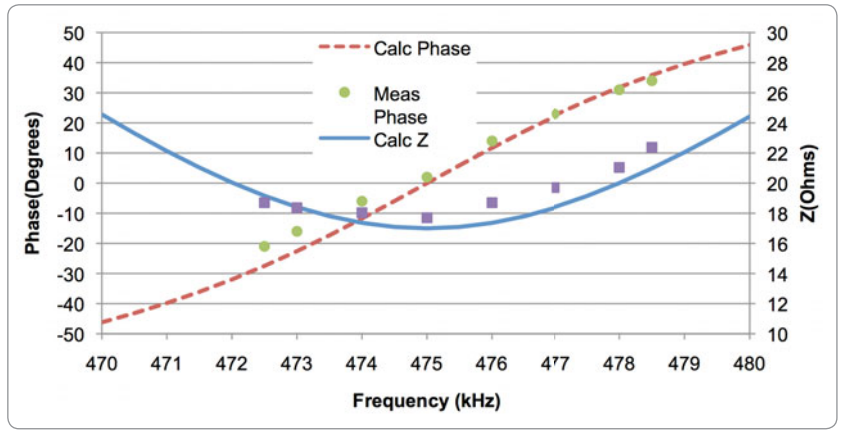


Figure 2: Modelled and measured phase angle and impedance of an antenna very similar to that shown in Figure 1, 'looking' into the loading coil at the base of the antenna. The measured values are those measured and calculated by the ATU.

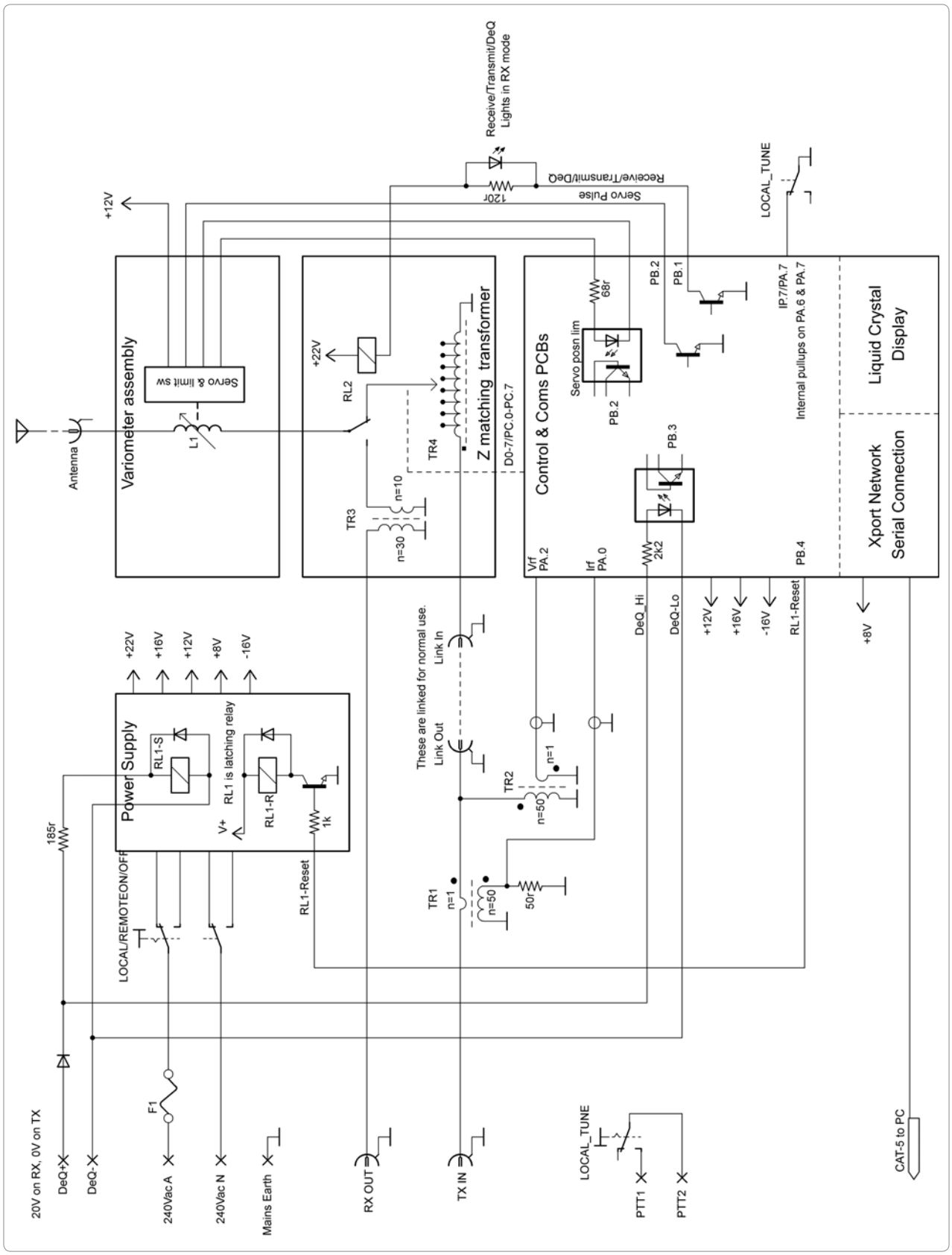


Figure 3: ATU block diagram.

frequency change was required, so a remotely operated Antenna Tuning Unit was constructed that allowed the matching transformer and variometer to be remotely adjusted for optimum tuning.

The requirement for remote control imposed some design conditions:

1. The ability to change transformer taps to match the transmitter to the antenna.
2. The ability to adjust the variometer position to tune the antenna.
3. Telemetry of antenna measurements: RF voltage, current and phase angle.
4. The ability to be able to switch transmit/receive and other relays.
5. Remote power on/off.
6. Not introduce any RF noise into the receive path via radiated or conduction paths.

The ability to operate at any reasonable distance from the operating position.

The final product met all of the above design criteria and has proven to be a useful, effective and convenient ATU that is controlled from a laptop computer via a CAT-5 network connection.

Description of the ATU

A block diagram of the ATU is shown in Figure 3. The transmitter output is connected to the ATU via a 50 Ω cable; the impedance of the load is measured by a current transformer (TR1) which samples the feed-line current, and a voltage transformer (TR2) which samples the feed-line voltage. Both of these transformers have a 50:1 turns ratio; the single turn primary of TR1 is in series with the feed-line and the 50 turn primary of TR2 is in parallel with the feed-line. This turns ratio has been selected so that when one ampere is flowing in the feed-line the RF voltage across the 50 Ω resistor on the secondary winding of TR1 is one volt and when the RF voltage on the feed-line is equal to 50 volts the voltage on the secondary of TR2 is also one volt. Therefore the impedance of the load can be easily calculated using Ohms Law and scaled to the 50 Ω reference, that is, when the voltages on the secondary windings of TR1 and TR2 are equal the load impedance is 50 Ω. This idea was presented by Jim Moritz M0MBU in his 'Scopematch tuning aid'[2] and it is a very useful approach.

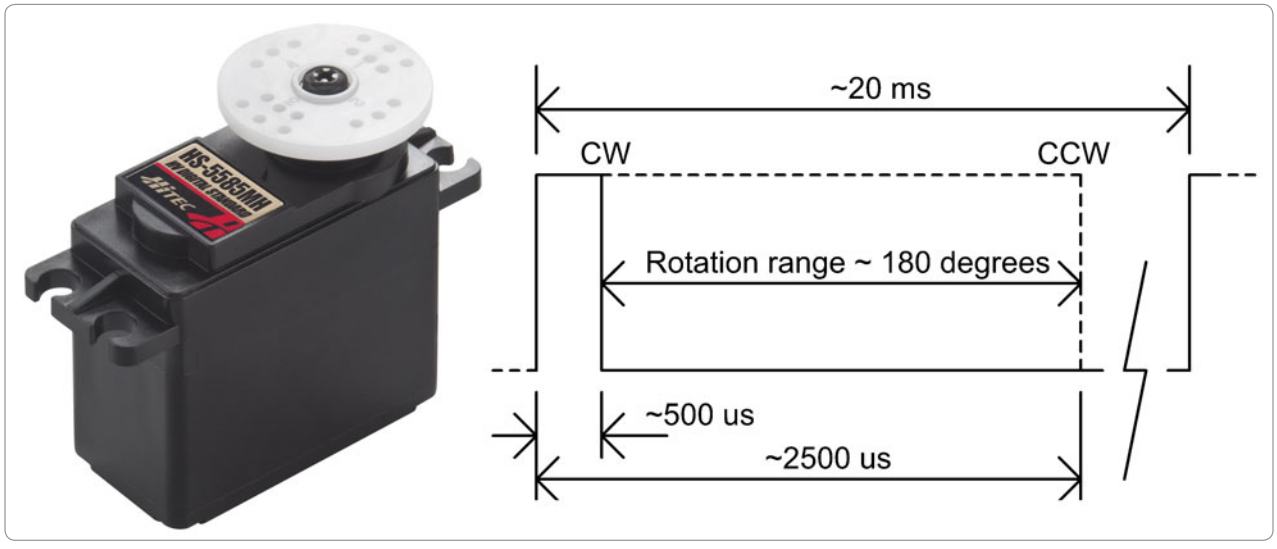
Following the measurement transformers is the impedance matching transformer, TR4, which is adjusted to match the antenna feed-point impedance to 50 Ω. TR4 has eight taps which can be manually or automatically selected based on the measured load impedance. The output from TR4 is connected to the variometer which is adjusted to bring the antenna system to resonance.

The phase relationship between the feed-line voltage and current is measured so it is easy to determine if the antenna is resonant. The auto-tune operation adjusts the variometer to bring the antenna into resonance by changing the inductance until the feed-line voltage and current are in phase, the transformer tap is then adjusted to best match the antenna to 50 Ω, and the variometer is then trimmed in case the phase angle has changed due to the changing transformer ratio.

The receive path, via transformer TR3, can serve two purposes:

1. If the main antenna is used for reception TR3 couples the antenna to the receiver feed-line.
2. If an active whip (Mini-Whip[3] or similar) is used it is sometimes

Figure 4: A typical model control servo motor and the basic control requirements. These devices come in various sizes from quite small to reasonably large and can rotate in excess of 180 degrees. For devices that are relatively cheap, they appear to be reliable and accurate in terms of positioning.



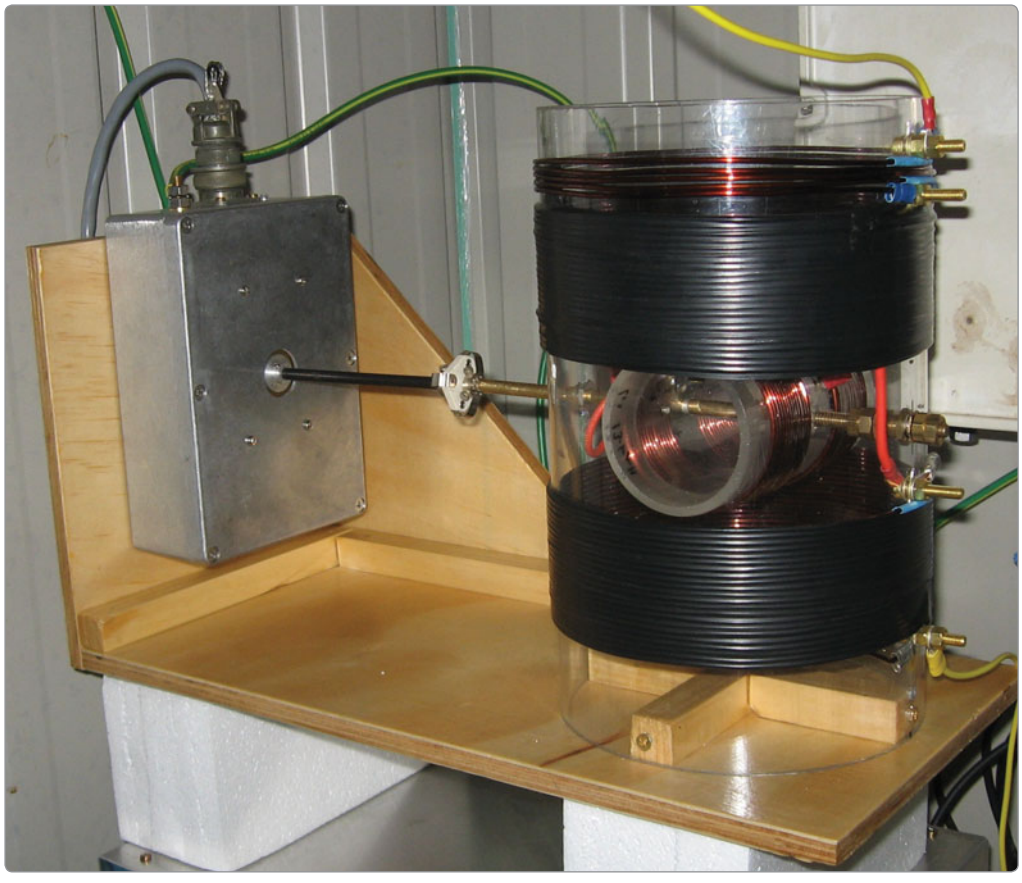


Figure 5: The servo driven variometer. The diecast box on the left contains the servo motor and associated electronics. As little ferrous material as possible was used in the construction to avoid eddy current losses. The variometer is wound with 2.2 mm diameter enamelled copper wire on a 150 mm acrylic tube with a smaller rotatable inductor mounted in sleeve bearings roughly in the centre of the outer tube.

beneficial to de-tune (or DeQ) the main antenna so that it does not re-radiate noise which the active whip picks up. In this case the output from TR3 is grounded when in receive mode which will de-tune the antenna enough to stop or reduce noise re-radiation.

The variometer is adjusted by a model control servo that is controlled from an output on the control circuit board. Figure 4 shows a typical model control servo motor; these devices are very useful, easy to use and quite inexpensive considering their internal complexity. They are easily controlled using pulses at a fixed repetition rate (usually 50 Hz) but with a variable pulse width. Typical values are:

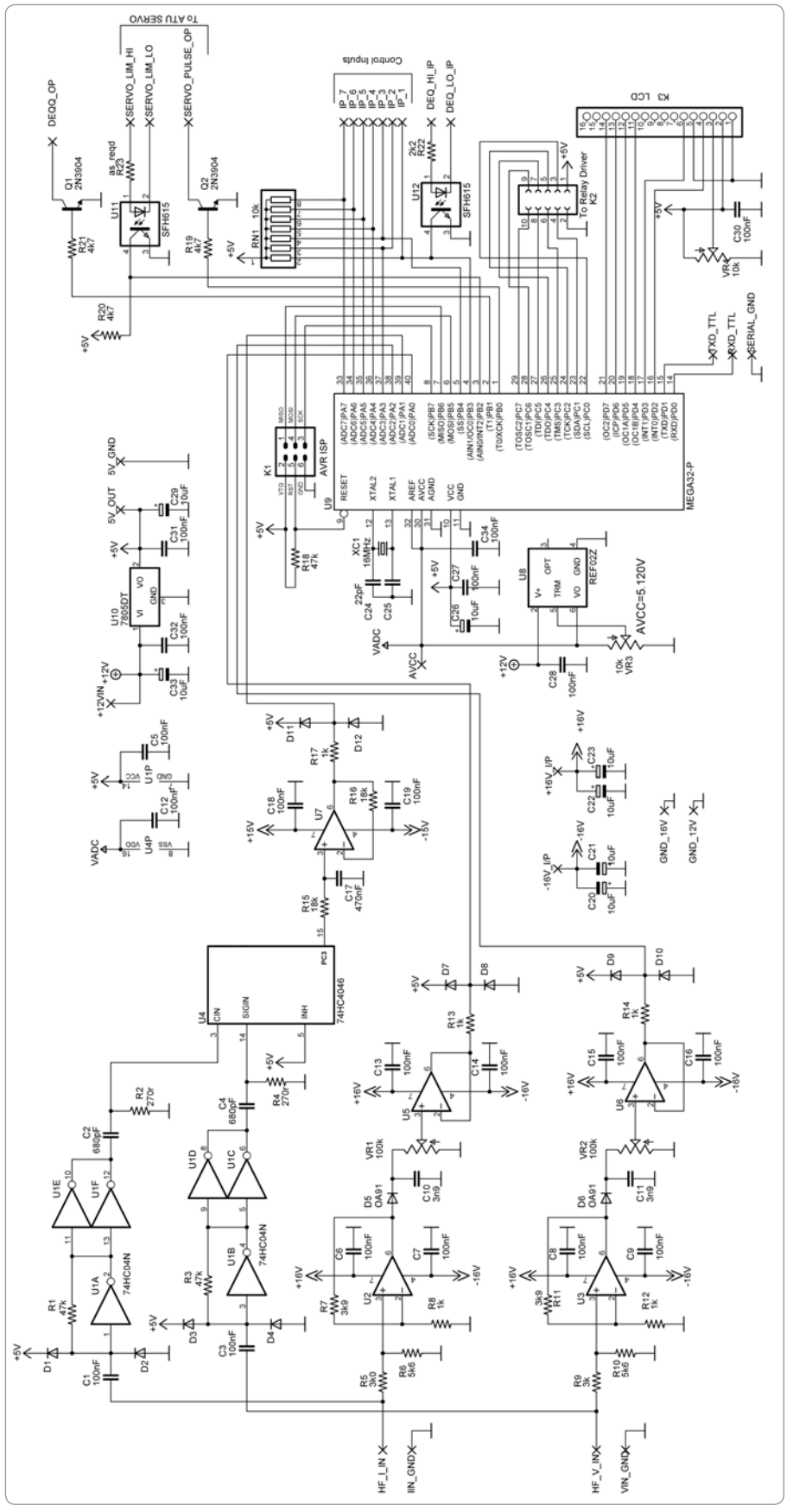
1. A pulse width of approximately 500 µs drives the servo fully clockwise.
2. A pulse width of about 2500 µs drives the servo fully anti-clockwise.
3. Pulse widths in between these values drive the servo to intermediate positions.

One slight complication was that it was necessary to determine the travel limits of the servo motor; the first unit tested showed a large current increase at either end of its travel and this was easily sensed using an opto-coupler across a resistor in series with the voltage supply. However another unit didn't display the same characteristics and this meant that some other form of position monitor was required. This turned out to be a simple slotted disk on the servo motor shaft which was monitored by a slotted opto-coupler. In practice the servo motors appear to be very stable and have a very reproducible positioning capability so regular calibration of the position is not required. Figure 5 shows the completed servo operated variometer.

Remote control of the ATU is achieved through a CAT-5 Ethernet connection and the microcontroller is connected to the network through an 'Xport' network interface[4] which is shown in Figure 6. These devices are exceptionally useful and simple to use; they allow virtually any device with a serial port to be connected to a network and potentially be accessible from anywhere in the world.

The ATU 240 VAC supply can be switched remotely by means of

Figure 6: The 'Xport' network interface. This remarkable little device is not much bigger than a RJ45 connector, yet it is a complete network interface complete with an inbuilt webpage for configuration.



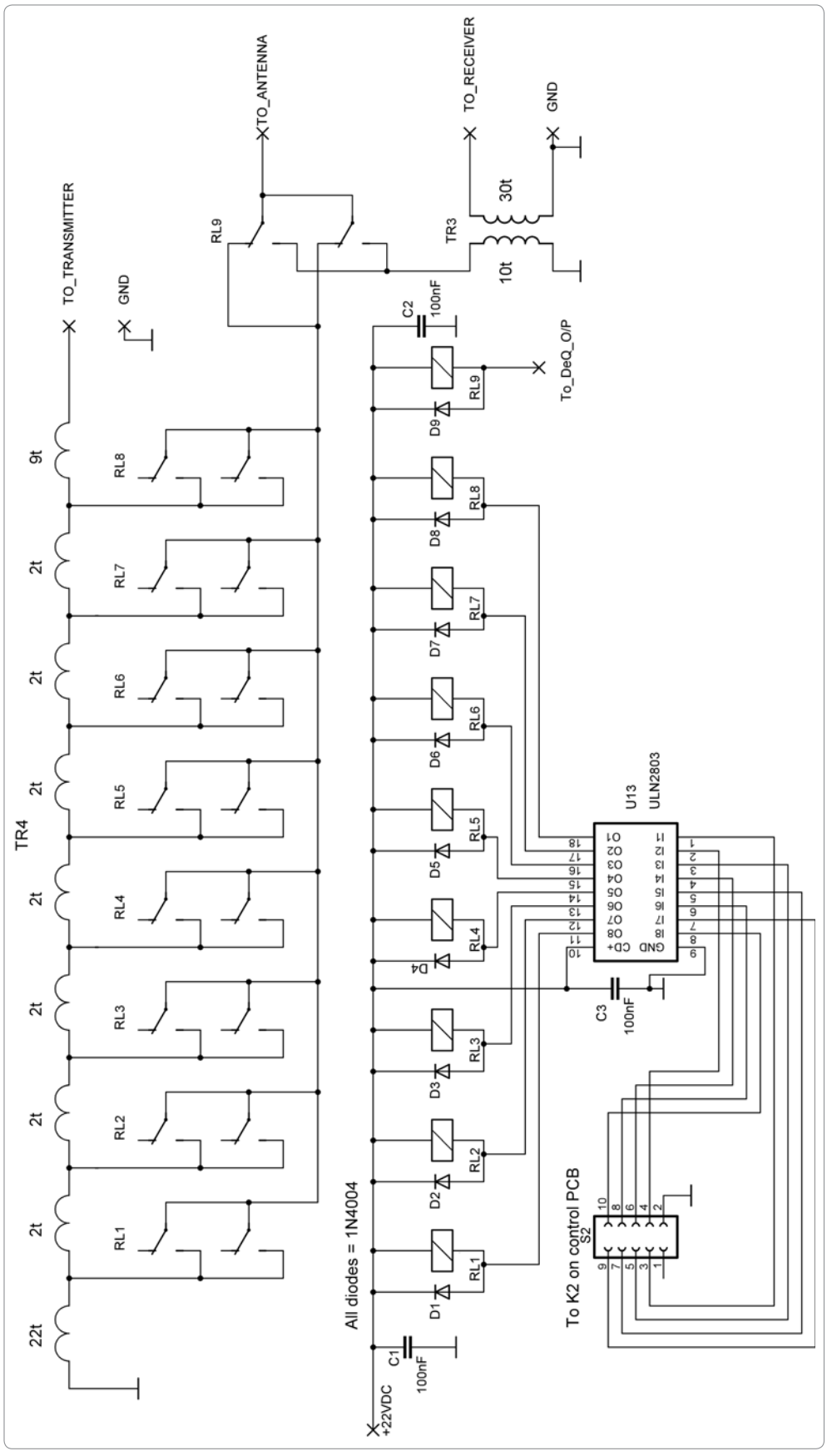
latching relay RL1. A voltage of about 20 VDC is sent from the transverter whenever it is turned on and is in the receive mode. This voltage energises RL1 which latches on and supplies 240 VAC to the ATU. Power to the ATU is removed by a command sent via the network which resets RL1 and removes power to the ATU. The 20 VDC signal is also used to switch relay RL2 which acts as a transmit/receive relay, as RL1 latches after first being energized switching the 20 VDC signal line does not affect power to the ATU.

The ATU also has some local controls; LED indicators and a four line Liquid Crystal Display so that its operation can be checked from the shed although normally this is not required. The LCD shows the various antenna characteristics in real time.

Circuit Description

The heart of the ATU is the control board which contains most of the analog and digital circuitry and the schematic of the control board is shown in Figure 7. The voltages measured by the current and voltage transformers are amplified by a pair of operational amplifiers, U2 and U3; the overall gain of each input stage is approximately five. Amplifiers U2 and U2 are LF357 devices as they were available and adequate for use around 475 kHz; however if amplifiers with a higher gain-bandwidth product were used, for example, OP37 or similar, the ATU could be used at much higher frequencies.

Figure 7: Schematic diagram of the micro-controller and measurement board. See the text for a discussion about amplifiers U2, U3, U5, U6 and U7.



Each signal is then rectified by german ium (or Schottky) diodes D5 and D6, the rectified and filtered signal is buffered by U5 and U6. Amplifiers U5, U6 and U7 are LF356 devices as they are working more-or-less at DC. Potentiometers VR1 and VR2 adjust the output voltage so that an RF input signal of 1.000 V RMS gives an output of exactly 2.000 VDC which is then fed to the analog to digital converters of the AVR microcontroller U9. Each analog input is protected against over-voltage or reverse polarity by a pair of diodes and a current limiting resistor. Voltage outside of the range (approximately) – 0.5 VDC to + 5.5 VDC will be clamped to either ground or the 5 VDC supply preventing any damage to the microcontroller inputs.

Measurement of the phase angle between the voltage and current inputs is done by phase comparator three within the 74HC4046 (U4). Note that the CD4046 is not suitable for this circuit as it does not have the third phase comparator. The main advantage of using phase detector three is that it has an

Figure 8: Schematic diagram of the impedance matching transformer board. Note that RL9 above is the same relay as RL2 in the block diagram (Figure 3).

unambiguous phase detection range of 0 to 360 degrees which simplifies use and calibration. Each input signal is amplified and limited by several 74HC04 inverters with feedback (U1), the limiting means that the phase measurement is relatively insensitive to amplitude variations of the input signal. As the phase comparator is edge triggered, the square wave from each limiter is differentiated by an RC network to form narrow spikes which trigger the phase comparator inputs. The phase comparator output is filtered and buffered by U7 before being sent to the ADC. Note the phasing of transformers TR1 and TR2, this is important as the output of the phase detector is at half-scale (2.560 VDC in this case) when the phase difference between the inputs is 180 degrees, so this requires that one of the input transformers is phase reversed. The ATU software then corrects the phase angle so that it is correctly measured and displayed.

To ensure accurate amplitude and phase measurements, the 10 bit ADC within the AVR microcontroller uses a stable 5.120 VDC reference voltage which is generated by the REF02 (U8), this results in a 5 mV/bit conversion which is adequate for the task. The reference voltage can be adjusted to exactly the right value by potentiometer VR3. The 5.120 VDC supply also powers U4, the phase detector. This is done to achieve the highest accuracy and stability of phase measurement.

Digital input and outputs which are internal to the ATU control box are pull-up or pull-down circuits using the internal microcontroller pull-up resistors. Inputs and outputs which go outside the ATU box to the variometer assembly are either active pull-down using transistors or are via opto-couplers. This allowed current-loops to be used for control and indication purposes; the advantage of this is that current-loops are reasonably noise resistant which is important in this case as the signal lines may be subject to strong RF fields.

The impedance matching transformer TR4 is on a separate printed circuit board which holds TR3, TR4, eight tap-changing relays and a transmit/receive relay. The tap-changing relays are controlled from an eight bit port on the AVR microcontroller via ULN2803 Darlington driver chip (U13) and the software will only activate one relay at a time when adjusting the tap position to match the impedance. The T/R relay is switched by a separate transistor on the control board. Figure 8 shows the schematic of the transformer board. Each of the relays are 24 VDC printed circuit board mounted types with 10 amp change-over contacts, but only the 'make' contacts are used by tap-changer. Only the T/R relay uses its changeover contacts. In all cases the pair of contacts in each relay is connected in parallel to ensure a low resistance connection.

NOTE: The number of turns on TR4 will depend on the required impedance transformation needed. In my case I had a reasonably good idea of what the antenna impedance was as a manual ATU had been previously used. Table 1 shows the turns ratio and predicted impedance transformation for the prototype ATU; if the required impedance transformation ratio for other installations is significantly different to what is shown in Table 1 the turns ratio on TR4 will need to be altered.

Table1: Turns and transformed output impedance for transformer TR4 assuming a 50 Ω impedance on the primary side.

Tap	Total turns	O/P turns	Z_{out}
1	45	36	32
2		34	29
3		32	25
4		30	22
5		28	19
6		26	17
7		24	14
8		22	12

The network interface is mounted on a small printed circuit board located on the edge of the enclosure so that a network cable can be plugged in through a small opening in the side of the control box. The interface is quite simple thanks to the sophistication of the Xport device. All that is required is a 3.3 VDC power supply which is derived from an eight VDC supply through an LM317 voltage regulator. The regulator is mounted on the bottom of the metal control box so that it is adequately heat-sunk. While the Xport device is quite small, it does consume quite a lot of current and the regulator will get hot if there is inadequate heat-sinking. The Xport device connects directly to the serial input/output pins of the AVR microcontroller as the Xport serial I/O pins are five volt compliant. While the Xport device does provide three pins which can be used as General Purpose Input-Output or as communication hand-shaking lines, they are not used in the current design. However the GPIO lines could be used to switch other devices if required. The schematic diagram of the network/serial interface is shown in Figure 9. If network communications is not required a simple RS232 interface or USB serial interface[5] can be substituted for the Xport device.

The final module within the ATU is the power supply board which is reasonably complex due to the number of different supply voltages required. This could be simplified somewhat by using relays with all the same supply voltage requirements, but in this case it was just as easy to add additional voltages as it was to source different relays – one of the joys of a well-stocked 'junk box'! Figure 10 shows the schematic diagram of the power supply and remote ON/OFF switching.

Remote power switching is achieved via RL1 which is a latching relay as described earlier. If the main ON/OFF switch, S1, is in the 'Remote On/Off' position and a DC

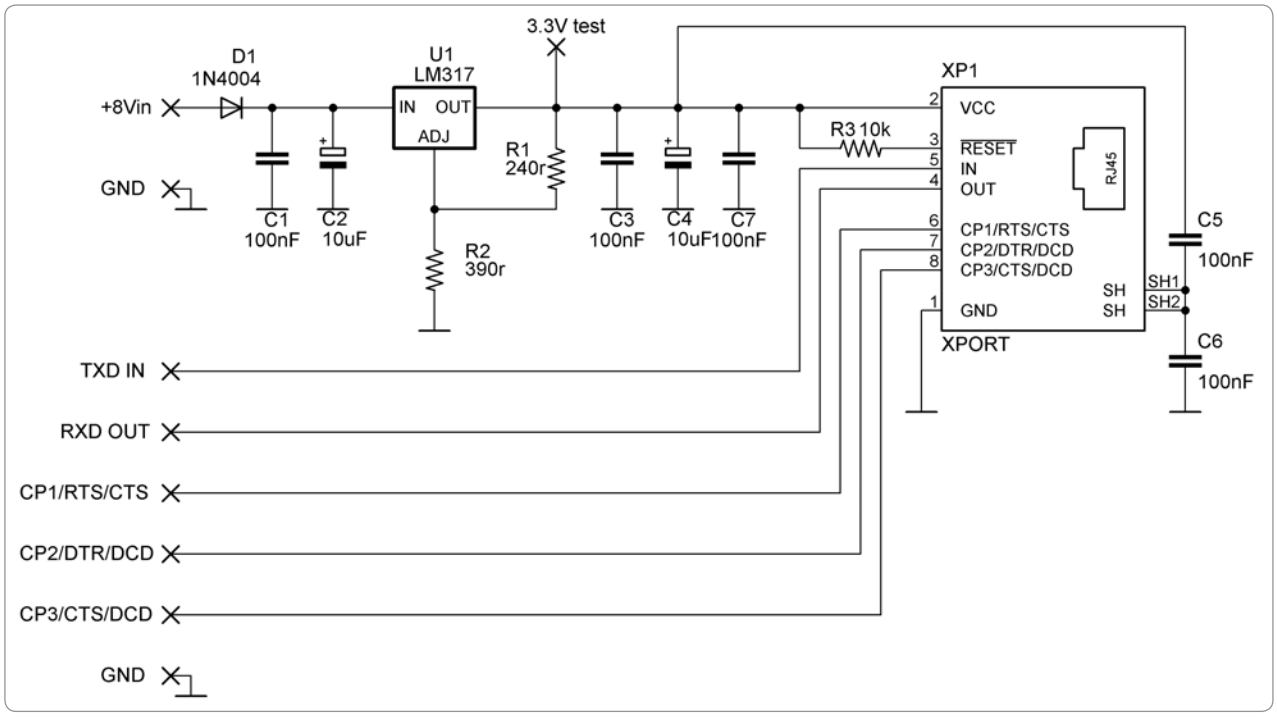


Figure 9: Xport network interface. The LM317 regulator is mounted on the chassis to prevent overheating.

control voltage is applied to the DeQ input (which also acts as a T/R signal) 240 VAC is connected to the ATU. The power supply consists of a center-tap bridge rectifier which provides plus and minus DC to the regulators for various parts of the ATU. Zener diodes were used for the +/- 16 VDC supply for the analog input amplifiers as I had them on hand, other regulators could be used if desired. The internal layout of the ATU made it more convenient to use the 22 VDC supply for the power reset circuitry (the reset coil of RL1) rather than the 12 VDC supply. Using a 24 VDC latching relay instead of a 12 VDC unit would slightly simplify the circuitry if desired.

The variometer assembly and servo drive system are the final components and are likely to be different for different installations, in particular the variometer, whose inductance will need to match the requirements of the particular antenna in use. In this case the variometer inductance can be adjusted between about 230 and 350 µH as approximately 280 µH is required to bring the antenna to resonance, but other installations may be different.

The servo assembly and circuit board is mounted inside a small die-cast box which provides mechanical support for the servo motor and driver electronics. While the circuit looks relatively complex, it simply provides optically isolated control and monitoring circuits via current loops which have already been described. Figure 11 shows the schematic diagram of the servo driver and the colours indicated on the schematic are the wire colours on the servo motor used for the ATU.

General construction

Figures 12 and 13 show the general construction of the ATU and variometer assembly. The control box is made up from sheet aluminium and is fitted with an internal partition to keep the control board away from the RF signal path, both to avoid RF noise pickup and to reduce the possibility of the relatively strong RF field around TR4 and taps-changers from disturbing operation of the microcontroller.

All control and power supply lines (except for the 240 VAC) pass through feed-through capacitors so that little RF energy leaks into/out of each compartment. The measuring transformers TR1 and TR2 are mounted on the rear panel of the enclosure, along with the impedance transformer board and various coaxial connectors. Sturdy, low inductance earth straps link the modules and chassis. A six mm bolt is used as an earth point which connects to the station ground.

Components

One of the nice things about working at MF is that components are relatively easy to obtain. Suitable ferrite material is widely used in switch-mode power supplies and inductors and transformers can be built using either toroidal cores or other forms of transformers. This ATU uses 20 mm diameter 3C90 material toroidal cores for the current and voltage measuring transformers (TR1 and TR2) and the receiver matching transformer (TR3), the more commonly available 'type

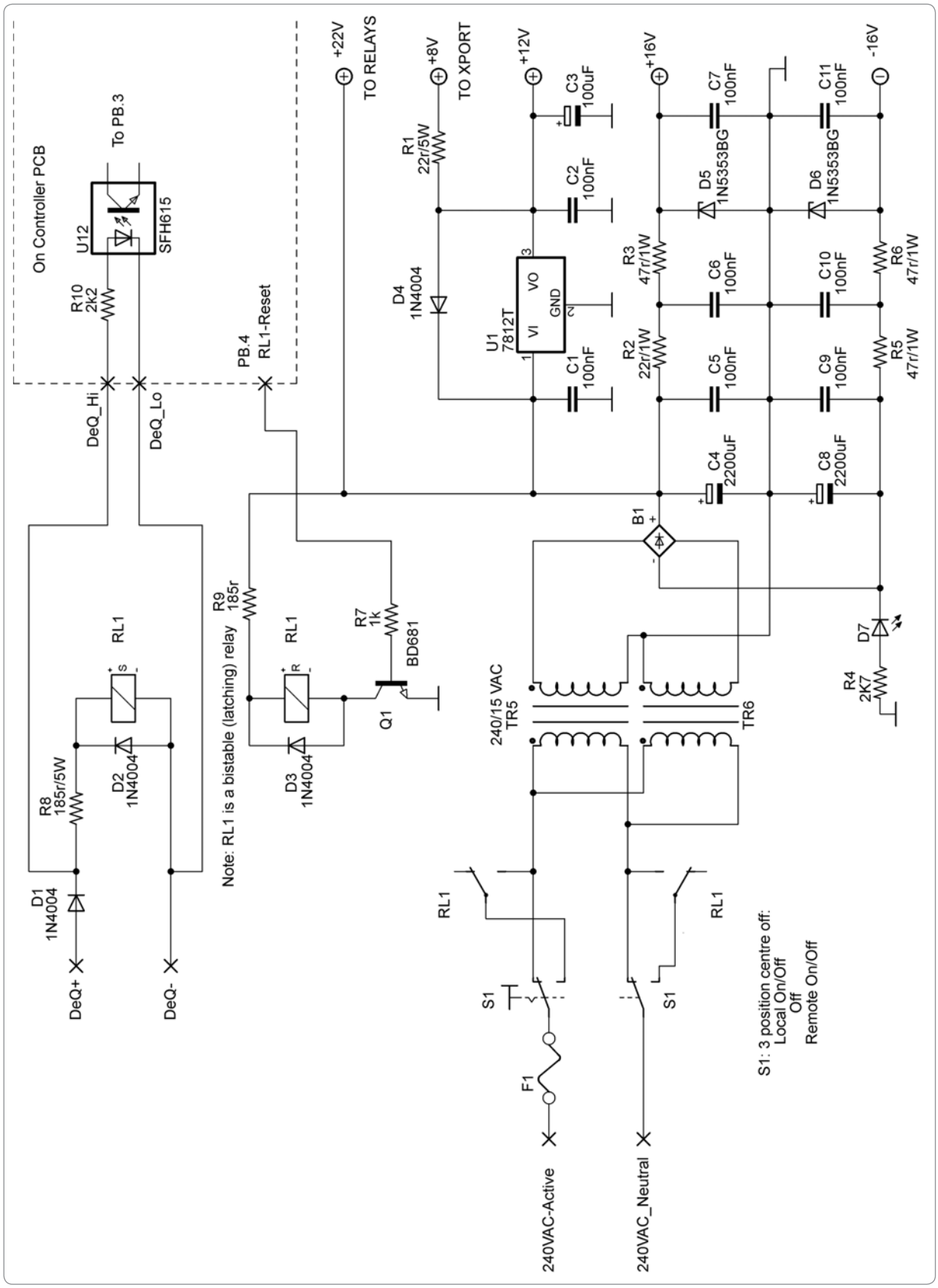


Figure 10: Schematic diagram of the power supply and remote power control. Power transformers TR5 and TR6 could be replaced with a single transformer with a 15 - 0 - 15 VAC winding if a suitable device is available.

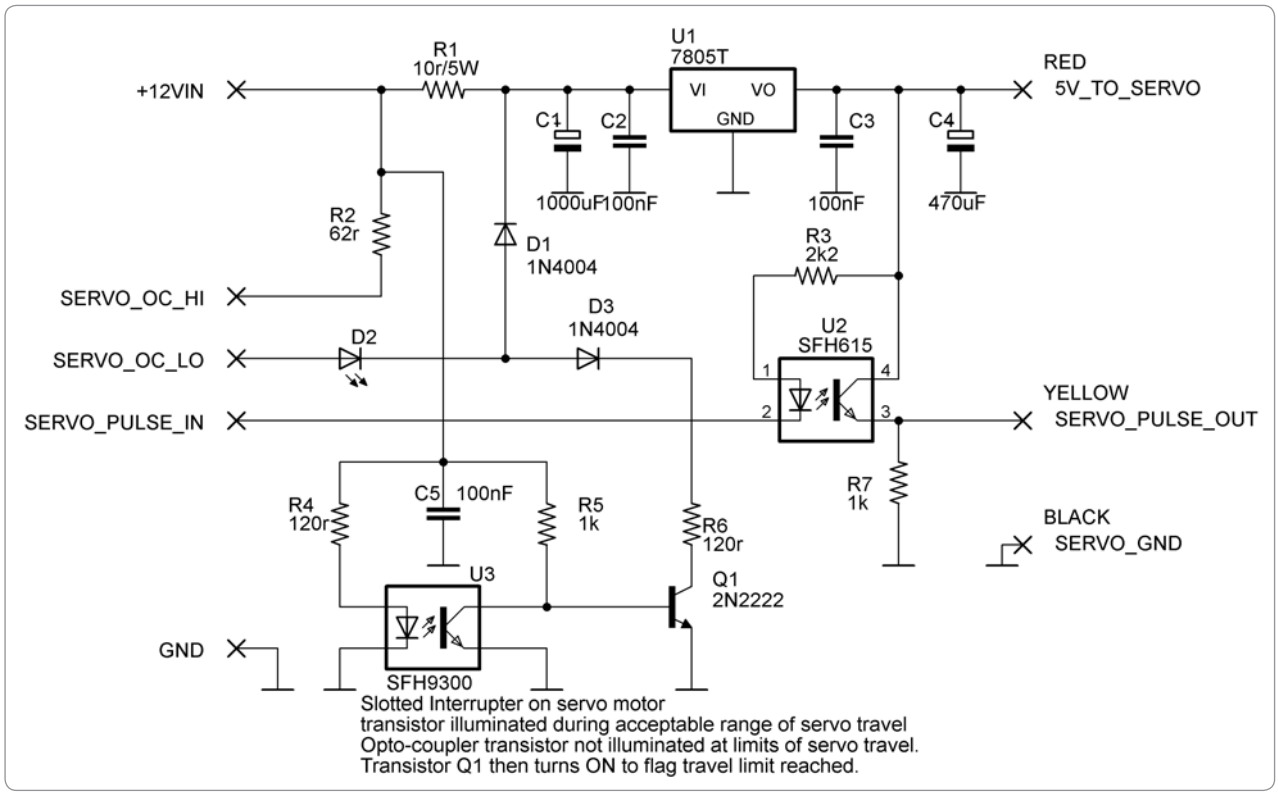


Figure 11: Servo motor interface schematic diagram. The indicator LED (D2) turns on when travel limits have been reached, either by detecting a high current flow through the servo motor, or when the slotted opto-coupler (U3) detects the travel limits.

43' material would also be very suitable. The tapped impedance matching transformer (TR4) uses an ETD-49 transformer core, again with 3C90 material and these cores and bobbins are readily available through a number of suppliers at relatively low cost.

As the frequency is quite low, almost any available PCB mounted relays can be used for tap changing and T/R purposes. Relays having a five or 10 amp contact rating are quite suitable.

None of the components should be difficult to obtain and a wide range of substitutes for most parts should be possible.

Software

The AVR microcontroller software is written in a dialect of BASIC using the BASCOM-AVR[6] complier. The software is reasonably complex and uses floating point calculations for best accuracy. BASCOM-AVR has many useful inbuilt functions for driving devices such as multiline displays, servo motors and the like and this helps make software development relatively quick.

The ATU uses a simple 'command line' interface and the user can select from a number of menus for various functions. Commonly used settings and calibration details can be written to the AVR EEPROM for permanent storage and rapid recall.

Communications with the device is easily accomplished with 'Telnet' software such as PuTTY[7] which was found to be simpler to use than either the Microsoft Telnet software or the commonly used HyperTerminal software.

While BASCOM-AVR was used with a standard AVR microcontroller, it would be straight forward to use an ARDUINO processor board in place of the processor which could either be loaded with the executable firmware generated by the BASCOM-AVR compiler; or the code could be re-written using the ARDUINO software and development environment.

Setup and Testing

The first thing to check is that all the supply voltages are correct, and this should be done before connecting the control or other circuit boards. The there are several adjustments on the control board that are required as part of the ATU setup. These adjustments set the calibration accuracy of the measuring circuits and need to be done carefully:

1. Adjust potentiometer VR3 so that the ADC reference voltage at the VADC test point is exactly 5.120 VDC.
2. Adjust potentiometers VR1 and VR2 so that outputs of amplifiers U5 and U6 are equal to 2.000 VDC when 1.000 VRMS at 475 kHz is applied to the amplifier input.

Figure 12: The completed unit with variometer inside the garden shed. The Liquid Crystal Display on the control unit shows measured antenna characteristics and tuning details. Note the common mode inductor in the CAT-5 network cable which helps reduce interference. The High Voltage sign isn't just for show; there is about 1500 V of RF potential at the top connector of the variometer when the transmitter is operating.

If a suitable dual channel function generator with adjustable phase control is available, the phase angle calibration can be checked; however this is not essential as the calibration coefficients used by the BASIC code should be OK due to the use of the very stable 5.120 VDC supply to power the phase detector. A suitable instrument for testing the phase measurement is a Tektronix AFG 3022 unit which has two output channels which can operate at the same frequency with a variable phase relationship.

When the unit is complete a simple test of functionality can be performed by connecting a 50 Ω dummy load to the 'Link Out' connector and applying a few watts of RF power at 475 kHz. The display should read very close to 50 Ω with a zero phase angle. Measuring the impedance of a (suitably rated) 6800 pF capacitor in series with a 50 Ω resistor should show a phase angle of approximately -45 degrees with an impedance of 70 Ω. Similarly a 25 Ω resistor connected directly to the 'Link Out' connector should show an impedance of 25 Ω and a zero phase angle. These measurements confirm that the ATU is measuring correctly. The resistors used for these measurements should be low inductance devices.

The next step is to join the 'Link Out' and 'Link In' connectors with a short cable, then connect a 25 Ω load to the ATU output and apply a few watts of RF power. Selecting the 'adjusttap' command should cause the tap changing relays to rapidly switch and the display should show an impedance of 25 Ω with a zero phase angle which confirms operation of the impedance matching circuitry.

When the antenna is connected to the ATU and some RF power applied, the 'autotune' command can be run and the variometer should rotate to resonate the antenna and the TR4 taps adjusted to optimize impedance matching. All is then ready to use!

A comment about power

While the ATU will display a power reading based on the measured feed-line voltage and current delivered by the transmitter, it is important to realize that most of this power is not radiated when using such electrically small aerials. Most of the power is consumed in various losses, particularly by the earth losses which can be significant[8]. The actual radiated power depends on the 'radiation resistance' of the antenna which can be calculated from[9]:

$$R_r = 160\,\pi^2 \frac{h^2}{\lambda^2}$$

The equivalent isotropically radiated power (e.i.r.p) is then:

$$P_{eirp} = G_A R_r I^2$$

Where R_r = the radiation resistance (ohms) – Note: this is not the antenna feed-point impedance!

h = effective height of the antenna (m)

λ = wavelength (m)

G_A= numerical 'gain' of short vertical antenna with respect to isotropic radiator

I = antenna RF current (amps)

P_{eirp} = power (watts)

The 'gain' really just accounts for the directivity of the antenna and the numerical gain[10] (not dB) is approximately three when compared to an isotropic radiator. The effective height takes into account the fact that because the

current distribution for a vertical antenna is not uniform the effective height will always be less than the physical height[11]. For the actual antenna that Figure 1 models, h ~ 8 m and when the transmitter output is 50 watts the antenna current is approximately 1.8 A, which gives a radiated power of ~2.5 W_{eirp} which is typical for such a short antenna. This figure probably overestimates the useful power as a fraction of the calculated power will be absorbed by objects in the immediate near field of the aerial; this is especially true in an urban environment where buildings and vegetation will be very close to the antenna. Despite these factors the propagation characteristics of the 472-479 kHz frequency band are such that trans-Tasman operation is quite achievable using narrow band modes with such modest powers.

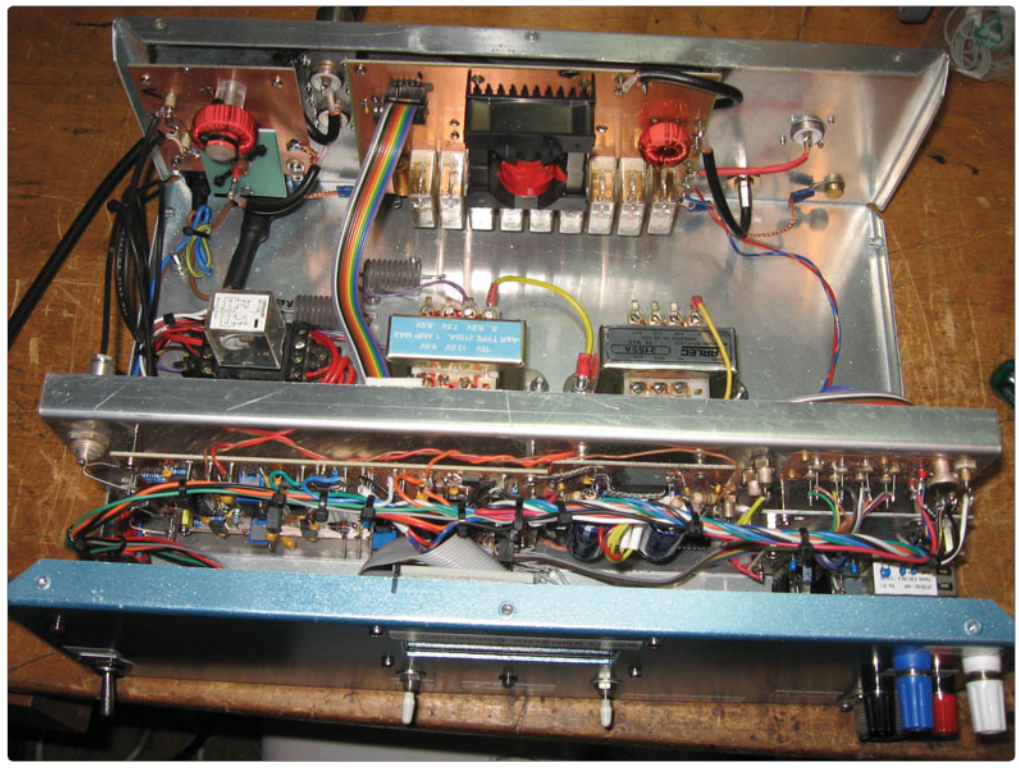


Figure 13: An inside view of the ATU controller. The control board and network interface are mounted on the internal partition. The impedance transformer board is mounted on the rear panel and the voltage and current transformers at the top left of the image.

Note that when using very short aerials at these frequencies, even with modest power, that the RF voltage on the antenna is high and that appropriate safety precautions must be observed. Do not touch the antenna when transmitting and ensure that appropriate clearance distances are maintained so that arcs do not occur when the transmitter is operated.

Conclusion

The ATU was a very interesting project and its development was quite educational. The final product works well and makes remote operation of the ATU very easy. The BASIC source code and PCB designs (in EAGLE[12] format) are available for interested readers. The ATU will function without modification (except for additional aerial loading inductance) on the 137 kHz band, or with some component changes to the front end amplifiers and variometer inductance the ATU could be used on several of the lower amateur HF bands if desired.

Endnotes

1. 'Reuse and recycle, your antenna…' AR magazine, Volume 81, No 3, March 2013.
2. 'The Scopematch tuning aid' LFtoday Handbook 2nd Edition, RSGB 2007.
3. 'The PA0RDT Mini-Whip Antenna', ibid.
4. *http://www.lantronix.com/device-networking/embedded-device-servers/xport.html*
5. 'An isolated USB interface for controlling radio equipment' AR magazine, Volume 80, No 6, June 2012.
6. *http://www.mcselec.com/* has details of the BASCOM-AVR software.
7. *http://www.chiark.greenend.org.uk/~sgtatham/putty/* has details of PuTTY.
8. 'Down in the dirt: radio earths…' AR magazine, Volume 79, No 6, June 2011.
9. See Chapter 7, LFtoday Handbook 2nd Edition, RSGB 2007. See also references 10 and 11 for more detail.
10. *http://www.500kc.com/downloads/RN06-32.pdf* and other web references. The short story is that a dipole has a gain of 2.14 dBi and a short vertical has a gain of 2.62 dB over a dipole, so the short vertical has a gain of 4.76 dBi which is very close to 3.
11. See 'Low frequencies: Below 1 MHz', Chapter 10, the Radio Communication Handbook, 11th Edition, RSGB.
12. *http://www.cadsoftusa.com/* for further details of EAGLE PCB design software.

A tripod support base for a mast

David Cleland VK7DC

Photo 1: The base of the tripod.

A while back our club had a bit of a field day where Steve VK7BI brought along a plaster sheet lifter that he had slightly modified and fitted a mast on top. The lifter featured a tripod base. This was the spark for my own creation, a fold up, lightweight, tripod base that is sturdy enough to support a 12 metre aluminium mast and yet compact enough to fit in the back of my station wagon. Once assembled the base is quite capable of supporting my full weight. While the base is reasonably stable in its own right, the use of guy ropes would be recommended for long term use or in anything other than calm conditions. This tripod could easily be scaled up or down to suit user preferences.

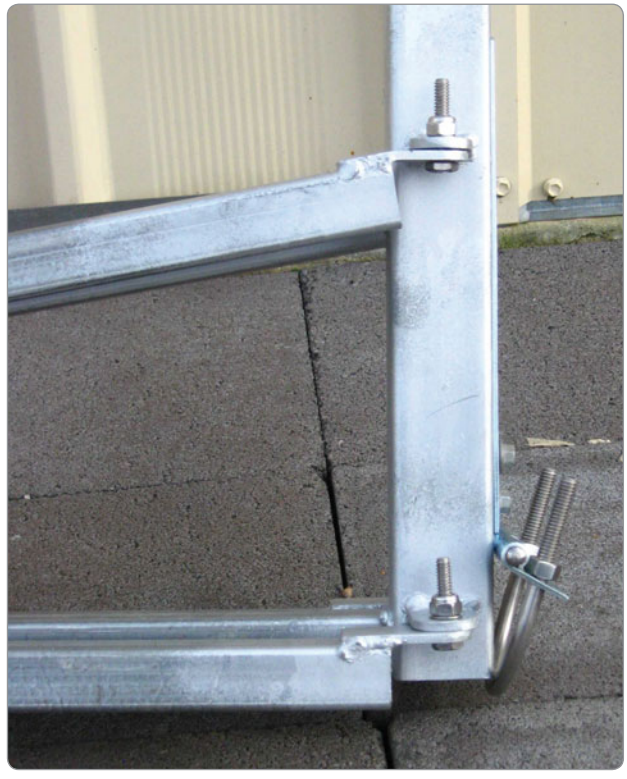


Photo 2: The pivots.

This base took me about a weekend to construct and the main tools required were an arc welder, bench drill (preferred), battery drill, angle grinder using both cutting and grinding discs, a set of six mm (or 1/4" BSW) taps and, obviously, drill bits. The cost! It was less than $100. A tip, however, is to shop around for steel as prices vary considerably. For corrosion resistance reasons, all the steel was purchased as DURAGAL finish where possible.

Construction

The base legs are 1.3 metres long and constructed from 25 x 1.6 mm square hollow section S.H.S. The lower brace sections of the legs are

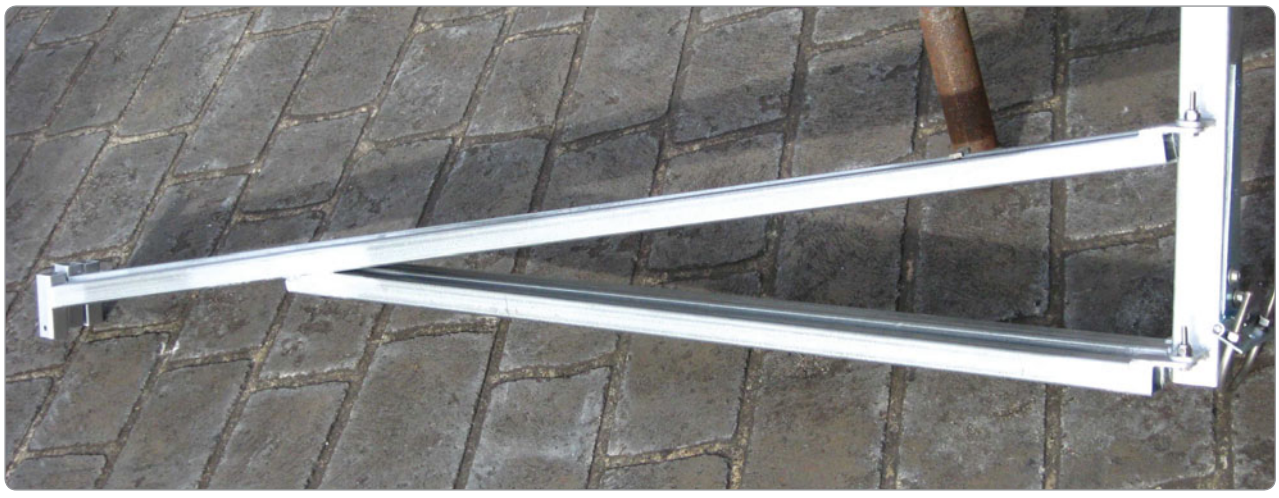


Photo 3: The legs.

Photo 4: The leg ends.

approximately one metre long and spaced apart from the top section by 200 mm where they affix to the upright.

The upright is 900 mm long, 40 x 2 mm square hollow section.

The lower leg brace sections also are at 90 degrees to the upright and therefore the upper section of the leg slopes down from the upright, raising the bottom of the vertical upright from the ground about 50 mm or so. The ends of the legs have a vertical 80 mm long section of 25 x 1.6 S.H.S. welded on to allow the use of a height adjustable extension to provide an amount of levelling.

The leg levelling sections are 300 mm long, 20 x 1.6 mm square hollow section S.H.S. with a loose fitting base pad made from 50 x 3 flat plate.

The two folding legs are locked in place with a pair of lock bars 400 mm long, 30 x 3 angle iron. The bars are drilled with 6 mm clearance holes at approximately 10 mm from each end. The ends are bent in a vice so the ends sit flat on the legs where the bolts attach.

Photo 5: The swivelling leg.

Photo 6: The lock.

The lock bars are held in place with six mm diameter set screws. The securing holes in the legs are tapped six mm. Once the legs are attached to the upright, set up the frame on the ground and from corner to corner the base legs measure about 2.38 metres. Set the spacing between all leg ends so that they all measure equally. The holes for the lock bars can then be marked on the legs and then drilled and tapped to suit.

The bottom mast clamp is mounted on a heavy duty gate hinge to allow the mast to be attached while it is laid down, refer Photo 7, and then walked to the upright position. The hinge is secured to the upright using a pair of heavy duty self-drilling six mm diameter metal screws, refer Photo 8.

The top mast clamp is mounted through a 50 x5 mm flat plate which is secured to the upright in a sandwich fashion by clamping, using a pair of six mm diameter bolts.

The front plate has six mm or ¼" BSW threaded holes. The bolts do not protrude though the plate. Refer Photo 9.

Photo 7: The heavy duty gate hinge.

Usage

The tripod base is set on the ground and the adjustment legs are then fitted. Fold the legs out to their approximate 120 degree spacing and fit the braces so that the legs stay at the correct spacing. If the mast is to be pivoted upright then make sure the fixed leg is pointing in the opposite direction to the direction the mast will be laid prior to erection. Adjust levelling legs if required. Put the base of the mast in the bottom clamp as shown in Photo 10 and then tighten the clamp.

I find that the 'U' bolts really do not need to be done up more than I can tighten by hand. When the weight comes on to it the clamp twists downwards at an angle and binds. Being as the clamp is a bit wide for the tube mast, it is not totally locked in line with the axis of the hinge when raising and lowering, thus preventing the hinge from laterally twisting and being ruined. Once the

Photo 8: The hinge secured to the upright.

Photo 9: The top clamp.

mast is stood up, the top clamp is fitted to keep the mast upright. Realistically this is the weakest link in the erection process, as it is possible to drop a nut when attaching the top 'U' bolt. When time permits I will make some other type of latch that can be quickly slipped on and then just tightened up.

Without the tripod base being pegged or held down, I could just walk the mast upright if I limited its length to nine metres. The mast is made from three metre lengths of thick wall 50 and 60 mm aluminium tube. I have another lighter weight nine metre mast which walks up very easily and the base was given its first real use with that mast attached at an equine endurance ride where our club provided safety communications.

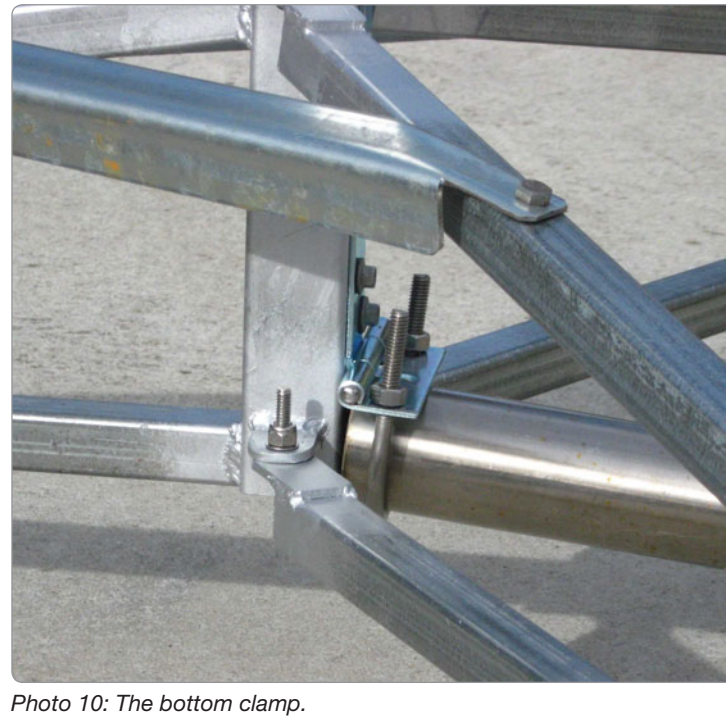


Photo 10: The bottom clamp.

Photo 11: The tripod in use.

A glimpse into the future – the Flex Signature Series radios

Brian Morgan VK7RR/4

The new Flex Signature software defined radios are now available in Australia, via the manufacturer in the United States, FlexRadio Systems. The Flex-6500 and 6700 represent a significant advancement on their predecessors, the Flex-1000, 5000, 3000 and 1500. I would like to share with you some observations about the Flex-6500.

The original Flex radios required a computer of significant capability as most of the computing side of the system was performed via this computer.

The performance of these radios was quite outstanding. I have never heard a negative from any user of them, other than a few who found that installing some of the more complex software presented a challenge to them. Their receivers are outstanding, their transmitters are reliable and they remain one of the best transceivers available.

The Flex-6500 represents a generational advancement which has learned from its predecessors.

The software (SmartSDR) is being upgraded regularly. When I first submitted this article for publication in early November last, we were using the first commercially available version of software. By the end of February 2014 we are using the fourth update, which now gives us most if not all of the features that we expect in a modern radio.

From the start, Flex was very open about this process of gradual software development. Prospective purchasers knew that initially we would only be given software which offered limited functionality, and lacked things, such as the ability to use digital modes.

The purpose of this article is to give you a thumb nail sketch of the radio but with a warning that by the time this article is published the software will enable it to do far more than it does today.

Photo 1: A close up of the front of the Flex-6500 radio.

Let me just pause to give you a short lesson in computer speak.

Anything that works in conjunction with a computer, such as a humble printer, a modem for the internet, or whatever needs to communicate with that computer, for obvious reasons. One expects these days that we can plug in a new printer and have the two devices work together. This does not happen by accident. Rather, with the advent, in particular, of Windows 7 and 8, our computers now have the ability to find the relevant software which is needed to drive the new device (known, unsurprisingly enough as 'drivers') and install them onto the computer. In the not so old days we would receive a CD or before that, a floppy, and have to load the software ourselves. Loading software and having it compatible with the computer is sometimes challenging, unless the computer can set up new software in a way which avoids conflicts.

The gateway between a computer and anything attached to it is called a comport, or communications port. Very few modern computers have an actual serial connection so most rely on their USB inputs as a means of enabling other devices to talk to the computer and vice versa. Thus we have USB keyboards, USB printers and so on.

But only one piece of equipment can connect to a serial port at any one time, without producing a conflict. The way around this is to digitally piggy back to a dedicated port, with virtual ports. More of this shortly.

Rather than giving a theory lesson on communicating with a radio and a computer, I will summarise *what* happens, rather than *how* it happens.

With our software defined radios, two very smart pieces of software take understanding, cables and hard work, out of the equation. This software allows logging programs, rotators, tuneable antennas, digital programs, to all connect to the radio through the computer, without any conflicts, so that you can run multiple equipment at once, virtually without doing anything to install it except push a couple of mouse buttons. It is very simple. For those with no understanding, the installation

manual sets out each step, so that it is very simple to follow.

So, to return to the Flex-6500. The radio comes with a SmartCat software program which allows us to generate as many pairs of ports that we might need to have all these programs work. This is a far simpler program than many of the others which were around in the early Flex days and is designed to integrate simply into the new Flex Signature series of radios and make setting up quite easy.

Imagine a station (mine) which runs the following peripheral equipment:

1. A SteppIR, tuneable antenna.
2. An Alphaspid computer controllable rotator.
3. A Tokyo High Power automatic band switchable linear amplifier.
4. Computer switchable antennas.
5. A logging program which records the name of the station worked, the time, date, mode and so on plus automatically 'knows' the appropriate beam heading for that station and can tell the rotator where to go (for want of a better expression).
6. Moving map display to show grey line, to identify the location of a country that we have entered into our log.
7. History of any previous contacts with a station.
8. Digital software for PSK, RTTY etc.
9. And so the list could go on to include multiple linear amplifiers, power output monitors and a variety of other equipment.

With a conventional radio, provided you have enough leads, time, patience and know how, you could connect all of these devices in hardware. Good luck. I will see you in a couple of weeks when you should have some of them running.

With the Flex 6000 series of radios, there are no leads whatsoever. All of these 'connections' are done in software and take but a moment to set up. Yes, all of these functions could be set up in less time than I would take to type the instructions for installing them. The software sets up the piggy backing so that one actual comport which reads the frequency, mode of operation, band and so on can be simultaneously read by one or more other programs, enabling the rotor to turn via software, the linear to change bands, the SteppIR to re tune and at the same time has the logging program record the details of a QSO straight from the radio itself.

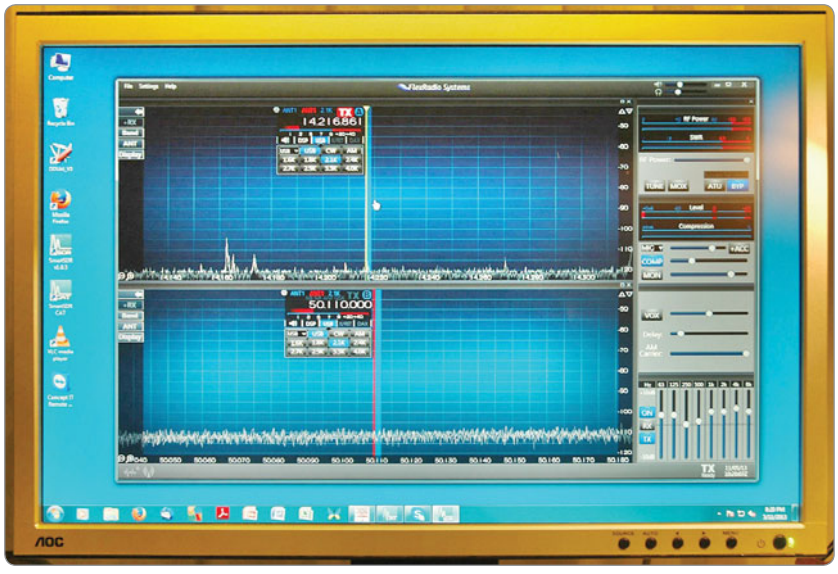


Photo2: The Flex-6500 set up for simultaneous monitoring of 20 and six metres.

Until the release of the Flex-5000, I used a Yaesu FT-1000MP Mark 5 and set it up so as to permit me to do most of these things. But it was time consuming to set up, required a multitude of cables and digital modes required an external piece of equipment to take the audio and convert it into digital data to be then sent to my computer.

The software which accompanies the Flex Signature series transceivers is designed to enable the user to integrate any number of other devices, quickly and simply. This process is no more difficult than attaching a printer and installing it to our computer.

Alternatively, if you are not into such complexity, the bare bones radio is simplicity itself to both set up and operate. You can make it as simple or as complicated as you like which is one beauty of this radio. It is designed to be set up by you for your convenience, not that of anyone else. I want to use mine for PSK-31, voice and CW and don't want to have to worry that my antenna or linear are on the wrong band, or that the antenna is not turned to the station. This is all done for me by the software that accompanies the Flex-6500.

Photo 1 shows the actual radio as seen from the front. For simplicity's sake I will leave for now the connectors for multiple antennas, separate linear amplifiers, press to talk and so on which appear on the back. I use the front microphone connection for an external microphone, plus PTT.

When the display shows 'Flex-6500' you are being told it is ready to play.

The Flex-6500 has four of what are called 'slice receivers'. These are the equivalent of four separate receivers, which enable the user to listen to four discrete bands or four parts of one band, simultaneously.

Don't be confused into thinking we are talking about four separate VFOs. These receivers are identical full blown receivers which allow us to simultaneously view or listen to

four separate parts of the spectrum, to independently adjust DSP or bandwidth on each slice and use whatever mode we wish in each. What this means is that you can listen to two sections of six metres at once, and simultaneously listen to slices of the spectrum on 20 metres and 80 metres and use different modes for reception in each of them. If you decide you want to transmit on any particular 'slice' you simply click on the TX symbol on that slice and that then focusses where you are to transmit.

In photo 2, the radio is set up to monitor two slices, one on 20 metres and the other on 6 metres. It can now be set up to show two additional slices of spectrum but the photo illustrates what I am trying to describe.

You will see that we are looking at a slice of the spectrum between 14.140 and 14.300 on the upper screen and 50.040 to 50.180 on the lower. We are able to zoom in or out, so as to increase or decrease how much of this spectrum we want to view. In the case in point we can add two additional slices to the like effect.

We can set up our screen so as to see what is doing in that part of the spectrum covered by each of our 'slices', with the screen being divided into vertical segments each of which shows a slice. Such slices have individual audio, mode, bandwidth, DSP and S meters. You will also see the controls on the right of the screen, which show our output power, VSWR, compression level, and so on.

In my previous article on the Flex 3000, (*AR*, April 2010) I commented on the huge advantage for DXing of being able to see weak signals before they reach the audible level. The Flex-6500 continues to allow us the same benefit but it does it better.

Recently I observed the noise floor on six metres increasing at the low end of the band and gradually working up towards 50.110. Within a few minutes I could see weak

Photo 3: A close up of some of the on-screen controls for the Flex-6500.

CW stations followed within a few moments by an excellent opening to JA which lasted nearly an hour. At the same time, by looking for weak signals, I was able to hear two Ws and one Mexican station, all of which came and went within a minute or two and were not heard by me again.

Think of it this way. When tuned to a discrete frequency, you could have anyone calling a few kilohertz away and you would not know they were there. By monitoring your computer screen to show what is going on within the tuning range of the receiver or slice, you can see all of that part of the spectrum.

In my flying days, many years back, we were sourced to fly to a remote site, using basic navigation but were assured that a low powered beacon would be turned on near to our estimated time of arrival. We flew backwards and forwards but no beacon. In the end, I reversed two of the digits given to us and there was the beacon! Just think. If we had an ability to 'see' that part of the spectrum we would have landed and been on our way without being thrown by incorrect information. Being able to see the spectrum that interests us gives immeasurably more information than listening to one frequency, or even moving our dial up and down the band.

Photo 3 shows a close up of the controls on the screen, which allow us to use our mouse to change modes of operation, switch digital signal processing in and out, adjust the bandwidth of our filters and audio output for that slice. As well, on the right of the main screen there is a combined audio level control which sets the output of our combined slice receivers. You can see which antenna is active, which part of the spectrum we will transmit on and the S meter display which shows just below S3 in the photo. There are drop down sub menus available by pointing and clicking our cursor.

The radio is designed for and puts out up to 100 watts PEP on all bands, 160 metres to six metres on SSB. It is adjustable with a slider, from zero up. On my Bird peak reading wattmeter into a dummy load, the results were within two watts of 100 watts on all bands, using a standard two tone test.

Using the Flex-6500 on CW is quite amazing. At 30 wpm, QSK, you can clearly hear between dits,

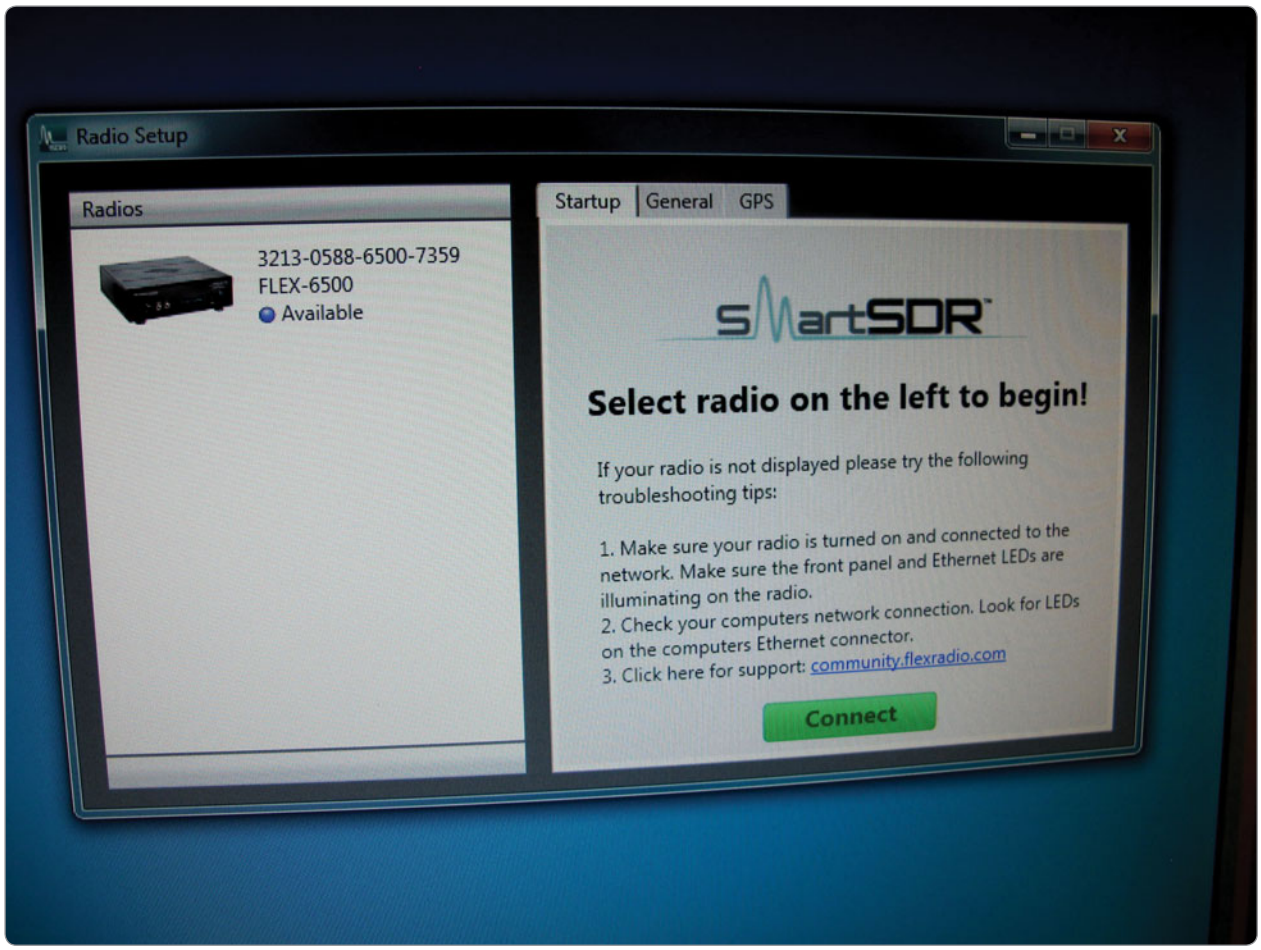

Radio Setup
Radios
3213-0588-6500-7359
FLEX-6500
Available
Startup
General
GPS
SmartSDR
Select radio on the left to begin!
If your radio is not displayed please try the following troubleshooting tips:
1. Make sure your radio is turned on and connected to the network. Make sure the front panel and Ethernet LEDs are illuminating on the radio.
2. Check your computers network connection. Look for LEDs on the computers Ethernet connector.
3. Click here for support: community.flexradio.com
Connect

Photo 4: The initial screen that greets you after connection of the Flex-6500 to the computer.

which gives you some idea of the switching speed. I have used many rigs for CW, over nearly 50 years of being licensed, using both a hand key and electronic keyers. I have never used a more CW friendly radio than the Flex-6500. Already I have heard of people using it at speeds approaching 60 wpm. I cannot read that fast and limit my sending speed to what I can receive at. Oh yes, there are programs that can help but I have yet to find one that is more reliable than my own ears.

The Flex-6500 is an absolute breeze to set up. The radio is ideally connected to an Ethernet port attached to your router. Any computer also connected to that router, either by wire or Wi-Fi, can then be used to communicate with your radio. I can move around the house monitoring my Flex radio on my laptop which is wirelessly connected to my router. In time this is going to make remote operation of the Flex radio so much easier to achieve, but that is for the future.

Photo 4 shows the screen you are greeted with, when the radio and the computer are connected together. There is a temptation to think that these radios are only for computer geeks. Nothing could be further from reality. That comment might have had more merit to the older radios but the new software takes all the understanding and hard work away from the operator who does not want to know how it works, just so long as it does what he or she wants it to. To paraphrase from the old film, Those Magnificent Men, where they set out the steps to flying an aircraft, here are the steps from taking the radio out of its case, to having your first contact.

1. Remove the radio from the outer case.
2. Remove it from its inner case.
3. Remove the plastic from it.
4. Either plug in the provided microphone, or make up a suitable adapter for a base microphone.
5. For speakers, either plug in powered computer speakers, or headphones or, as in my case, plug into the audio switching unit in your shack.
6. Plug in the supplied power lead to 13.8 volts at 25 A.
7. Plug in a suitable antenna to Ant. 1 on the back of the radio.
8. Plug in the supplied blue Ethernet wire to your router.
9. You are now ready to install the software to a computer attached to your router.

a. Go to the installation site for SmartSDR and load the software. This is all mostly automatic and requires little input from the user.
b. Load SmartCAT software (this is used to generate the virtual ports I mentioned before). Again, very little is required of the operator as this loads and installs automatically.
c. These two programs install from the internet and require no computing skill to install.
d. Install and set up SmartDAX which I will discuss shortly, if you want to use digital modes.

Once this process is finished, you will be prompted to turn on the radio. The Flex radio goes through a calibration routine which takes a few seconds, each time you turn it on. Once the Flex- 6500 banner appears on the computer's screen, as shown in Photo 4, you are being told that the computer recognises it and that it is ready for use. Click on the radio logo with your mouse and then hit the Connect button in SmartSDR.

If you happen to have installed an upgrade to the software since last use, instead of seeing the word 'available' you see 'upgrade', a reminder to update the radio. This requires about two mouse clicks from you as the rest is automatic and takes a couple of minutes.

You will see a panadapter display of the radio, set to the frequency the radio was last tuned to.

I had my first contact without touching any of the presets on the radio. Later I adjusted the level controls and the audio equaliser for both receive and transmit, but the radio was basically ready to use out of the box.

As you would expect of a modern transceiver, we can use our Flex with transverters, can adjust our power out, can shape the receive and transmit audio, reduce noise with variable DSP, can use VOX and can compress our audio on transmit. In short, the radio has all the features that modern radios have but it also has much more and Flex does it better, in my view.

Flex have obviously gone to a great deal of trouble to make the installation of the radio to the computer so simple that if you can install a printer to your computer, you can install a Flex Signature radio.

In my own case I had the radio for nearly a week before I had a chance to plug it in. Whilst the software was doing its bit, I wired up the microphone plug. It took longer to solder than the software took to load. I had my first contact on SSB a few moments later.

Like all radios, the more you use it, the more you realise what you can do with it. Initially I tried using my hand key at about 14 wpm on CW and when this was successful I went to my Bencher keyer. The Flex allows us to set the speed. Its default value is 30 wpm. The internal keyer is the best I have ever used.

Early versions of the software lacked a memory of your settings but now you return to the radio, turn it on and it is as you left it.

I would like to make some comments about Flex, the company, and its products because I think that after sales service is crucial to our enjoyment of a radio.

First, Flex have, from the start, engaged actively in their forum where any user can ask any question about their radio and generally receive an answer either from another user, or occasionally from a Flex staffer. By now, most issues that people have found with the Flex-5000 or 3000 have been identified and written about, such that a quick search in the Knowledge Centre on the Flex web site will come up with the answer. Most problems arise through lack of familiarity by new users, who, rather than persisting, seek help.

Occasionally a user will find an interesting glitch. Flex respond to such queries like lightning and share their findings with us all. If there is a problem with a radio, users can initiate a one on one ticket with Flex technicians who will work through the problem with the user. If the radio requires repair the turnaround is, I am told, a matter of days,

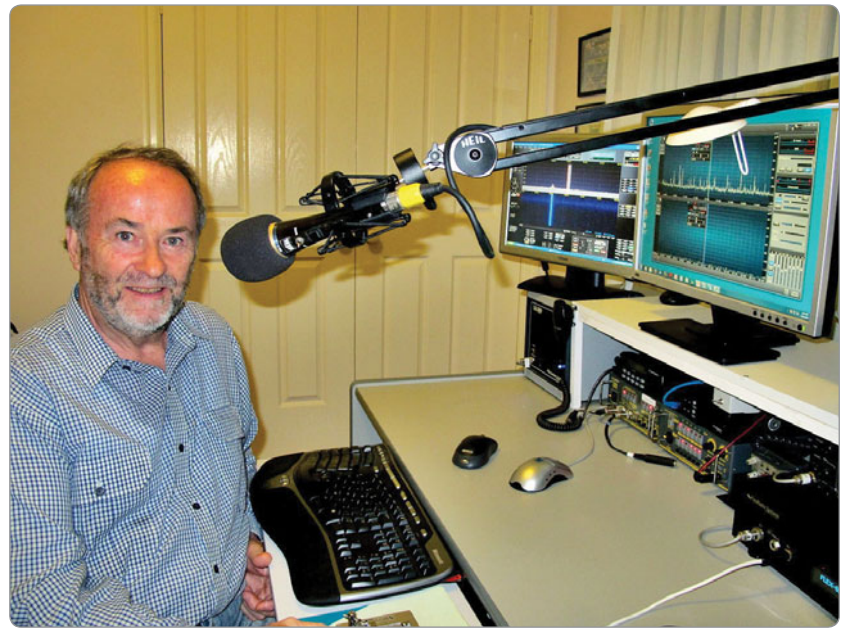


Photo 5: The author's Flex station – the Flex-5000 on the left and the Flex-6500 on the right.

certainly not weeks. I own three Flex radios and have never had a fault with any of them.

With the Flex Signature series, of which the 6500 is one, the radios were released to users, such as myself, who agreed to be Beta testers, that is, to use the basic software and report on issues that we found with it. As an early Christmas present Flex released the first non-Beta version of the software on, I think, 21 December and it did everything that Flex said that it would. I downloaded and installed it the day before leaving on holidays. It was a frustrating period as I dearly wanted time to play with my new toy.

Flex have produced a timeline within which various additional features are going to be added to SmartSDR, so that users have a good idea of what is coming and approximately when. To date, it appears they are ahead of their time line.

As part of our purchase package, we are able to pay an additional sum for updates of this software for particular periods of time. Speaking for myself I have no difficulty in agreeing to pay for the continued development of software which is going to assist me to further enjoy my hobby and have paid up front for an additional two years of updates.

One can elect not to pay for upgrades, in which case the version of software will remain as it was from 12 months after purchase. I strongly recommend that all buyers of the new radios take out the option of upgrades at least for the next couple of years.

Throughout the history of PowerSDR which drives the Flex-5000 and 3000, updates were free. I think that everyone expected that Flex would charge for updates to their software at some stage simply because of the need for revenue to fund the on-going development of that software. Think of the software cost as the cost of maintaining and upgrading a conventional radio once the warranty period has expired. In that sense it is not an expensive overhead.

Photo 6: The author's station as viewed from the operating position.

But you cannot compare the PowerSDR available today with the older Flex radios with the original versions. Users have said, with some justification, that each update to the software is like obtaining a brand new radio. Certainly the program today versus five years ago is like chalk and cheese. Indeed the SmartSDR of late February 2014 is a far cry from that which I was using in October 2013.

Conclusions

FlexRadio is a very user oriented company. After a while, you feel that you actually know the personnel through their comments in their forums. Each week or so we receive an email containing an update from the company President, Gerald, appropriately called 'Flex Insider'. He writes as if he is speaking to each of us individually. We are, after all, members of the Flex family. On the few occasions that I have emailed Flex over the years, their response has been received within a day, and addressed to me by my first name, not 'Dear Sir'. I have not had to report any problem with my rigs.

The home of news and views of the new Flex is called FlexRadio Systems Support Community. This word 'community' sums up what I perceive to be the ethos of the company. No problem seems too small or insignificant to them, although they must tear their hair out when users write in about a problem without first looking in the Knowledge Centre for an answer. This repository is contributed to both by Flex engineers and a variety of users, many of whom are software developers or electronics experts of some kind. There are even a number from myself.

The digital enhancements provided by a software defined radio have previously been written about by me, but you need to play with this radio to see for yourself just how good it is.

The digital filters allow you to copy CW at 100 Hz bandwidth, without any ringing or distortion, the sensitivity of the radio is quite outstanding and adjacent channel interference seems non-existent. In this respect I have compared it with my Flex-5000, which was very good, but the 6500 is better again.

We have had a very good few days on six metres as I write. I have worked Hawaii, countless JAs, China, South Korea and have heard Mexico and the Philippines. Yesterday the spectrum display

showed wall to wall contacts as seen in Photo 7 but almost hidden was a South Korean station on SSB. Although other very strong stations were less than two kHz away, I worked him without any difficulty at all.

Is this radio a significant improvement on the Flex-5000? The answer is a definitive 'Yes'. When I first wrote this article we did not have digital modes available to us. They were in the software release before last. Flex put out a YouTube video to show, step by step, how to set this system up. In my case I had my radio running on one monitor, the video on my laptop and followed the narrator. It was very simple. You simply can't get it wrong.

Photo 5 shows my paperless station with the Flex-5000 (now for sale) on the far left and the 6500 towards the right. The silver mouse is for manually controlling the rotator. I mention that my Flex- 5000 is now for sale. I was not prepared to sell it until the digital modes were available on the new radio. Now that they are, I have no further use for a very good radio.

Photo 6 is the screen showing the SteppIR controls, logging program, stations recently worked. By entering a callsign the rotator will turn to either the long path or short path heading, at my command.

So in summary, what do the Flex-6500 and 6700 offer?

These radios do not have the limitations which are the bane of hardware based radios. If we want narrow band on CW, it is there in software. If we want to listen on four bands at once, we simply enable them rather than buying additional radios. If we want to transmit on a different band to the one we were on a moment ago, we hit the TX button on the appropriate

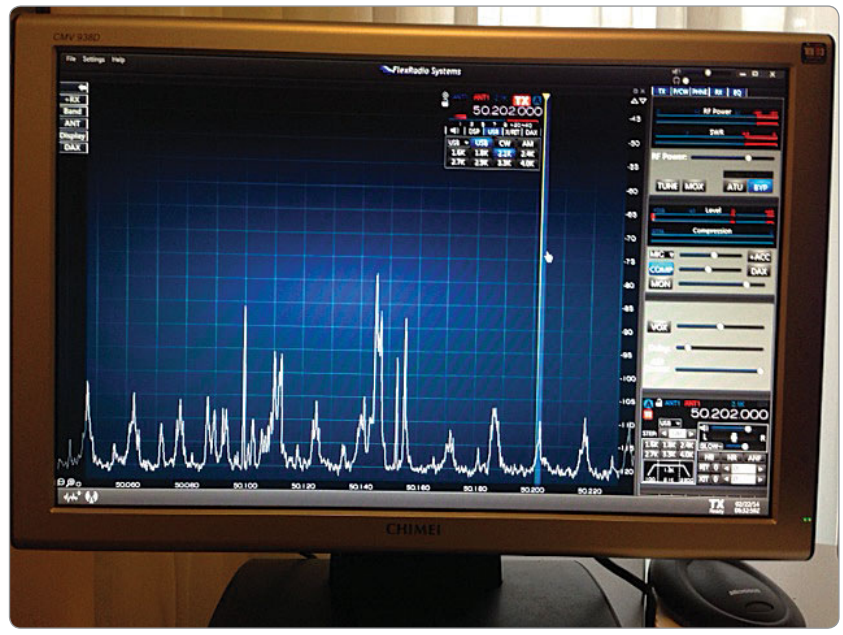


Photo 7: Six metres wide open at Maleny.

receive slice and we are good to go (assuming a multi band antenna, or different antennas). Yes, each slice receiver can be allocated to the same antenna or its own individual antenna. I would also comment again on the value of having a nice large computer screen to monitor our band or bands of interest.

On receive, I have used every type of product available from the other manufacturers. Once you can wean yourself away from the joys of fiddling with tiny controls with numerous functions which require you to reach for the handbook, your reading glasses and a stiff whisky every time you want to change some setting, the Flex SmartSDR package is such an easy radio to use. It is a pure joy to operate. All the controls are on screen in large writing, the pull down menus, such as to change modes from USB to CW and so on are easy to see and to follow and every function is on screen and easily found, first time, every time.

DX stations frequently compliment my audio. Locals tell me I have too much compression so presumably for DX this does give an edge, but for around town, it is desirable to remove the compression. When I do, the locals say the audio is excellent.

I have been a fan of Flex for ten years now since I saw them at Dayton in 2004. I compliment and congratulate them and look forward to this voyage of discovery as they continue to roll out developments of their software. Coming up very soon will be the ability to control our Flex-6500 on our iPad but auto control of our garage door opener, our coffee machine and personalised text warnings of approaching band openings, are probably some way off.

Contribute

Articles and high quality photographs for *Amateur Radio* and *Callbook*.

See *http://www.wia.org.au/members/armag/contributing/*

ALARA

Margaret Blight VK3FMAB – Publicity Officer

At the time of this edition being published I will, no doubt, be looking back on an enjoyable trip to Queensland to finally visit the Great Barrier Reef. But at the time of writing this is something still to be experienced. As other radio friends were also taking advantage of fine weather to plan and/or go on holiday, a number of VK3 friends gathered for an enjoyable dinner together to catch up and swap yarns.

Following is an update on the plans made for the Nelson Bay ALARAMEET to be held later this year. A great deal of energy has been expended by the VK2 YLs to make this one of the finest Meets held so far. We can best show our appreciation by registering to attend and joining in the fun.

Photo 1: VK3 ALARA members and friends enjoying a get-together dinner.

ALARAMEET 2014 -

Nelson Bay, from 24-27 October, 2014

Registrations and deposits are coming in but rather slowly for ALARAMEET and we really need more to register as soon as possible so we know how many to cater for.

A holiday weekend at Nelson Bay will be a very relaxing time with sea air, beaches, boat rides and beautiful scenery plus we will have the fun of meeting up with ALARA YLs and their OMs. We always have lots of laughs at our ALARAMEETS so please book in with Anjes and let her get on with all the subsequent arrangements, which is hard to do when you don't know the numbers. Anjes and Henk will be away for a few weeks in the middle of the year and want to get most of the work sorted before they go. They will still be available on email and can reply quickly but their snail mail will be held until they get back, so if you are going to use snail mail do it now.

Programme and information

Friday

4 - 8 pm: Registration and welcome. Show bags with local information. Bring along the things you want to hand in for display or want to donate for the raffle. There will be a table to showcase our craft and handwork. YLs have many skills that are discussed on the radio nets and here is a chance to see some of that beautiful work.

Raffle items are interesting and/or useful items that we would be happy to win ourselves.

Saturday

9.00 am: Opening of the meet by the President of ALARA, Jean Fisher VK3VIP.

YL - Presentations by members - (DXpedition slide show).

OM - Visit to Fighter World at Williamtown.

FighterWorld, an exhibition in two hangars at Williamtown RAAF Base, is dedicated to preserving the history of fighter aircraft of our air force. You can touch, look into the cockpits, walk around or go outside to enjoy the noise and action of an operational air force base.

11.00 am: Morning coffee or tea and Eyeball QSO and the photo session.

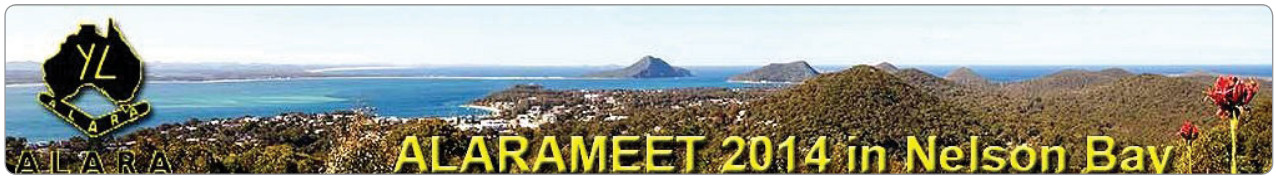
12.30 pm: Lunch.

1.30 pm: 'Port Stephens' by John 'Stinker' Clarke. John is a well-known personality in Port Stephens: historian and fishing guru, who has written several local history books.

2.30 pm: Bus tour around the Peninsula. Along the way John Clarke will point out various walks and things to do in the area. Port Stephens is the estuary of two main rivers and many creeks and is larger than Sydney Harbour. There are 26 sandy beaches and it is home to a large pod of dolphins. There is an abundance of beautiful, relaxing views both above the water and below. After the bus tour we will be dropped off in town for afternoon tea and shopping on your own, at about 4.00 pm.

7.00 pm: Dinner cruise around Port Stephens on board the 'Moonshadow'.

Photo 2: The ALARAMEET logo.



Sunday

9.00 am: Coach to Maitland Gaol. The prison was built of sandstone from Morpeth and Farley and first opened to inmates in 1848. It has a rather colourful history with many great escape attempts. Most escapees tried climbing over the walls although seven men went through an exhaust vent in the shower room but were all caught within two hours. Another time a long tunnel was discovered, before it could be used. There were riots and fires. Drugs were sent over the wall to inmates, in tennis balls or dead birds. Filming of advertisements, TV serials, features and films has taken place since it closed as a gaol in 1998.

Then, on to the scenic Hunter Valley. First to Pokolbin shopping village with interesting shops, including a traditional Italian gelato shop, a well-stocked smelly cheese shop, a chocolate and jam company shop and a shop to tempt vixens 'with a gorgeous selection of jewellery, handbags, gifts, mirrors, lamps and naughty items'. Is that us?

We go to Robyn Drayton Winery for wine tasting and lunch. Robyn Drayton is the only female vigneron and winemaker in the family and continues a proud tradition of over 150 years of Drayton winemaking in the Hunter Valley.

Photo 3: Visitors enjoying Maitland Gaol.

After lunch we have a brief visit to historic, interesting Morpeth. Morpeth was *the* river port on the Hunter River from 1831 until the Great Northern Railway was built in 1857, bypassing the town. Apart from the lovely river views and historical buildings a few of the attractions in the main street include the Morpeth Sourdough Bakery, the original site where William Arnott, the Scottish biscuit maker baked and began his iconic biscuit company. The humble bake house and store is still owned and worked by a sixth generation Arnott. There is the Australian Alpaca Barn, which has delightful alpaca products as well as yarns and accessories made from Australian fleece. And Morpeth Wine Cellars and Moonshine Distillery have two copper pot stills where Morpeth Moonshine is made onsite. Then return about 4.30 pm.

7.00 pm: Dinner with raffle and Trivia Quiz - Dress up in a 'Mad Hat'.

Monday

11.00 am: By ferry to Tea Garden (and maybe on the way spot some dolphins) and further by bus to historic Tahlee House for lunch, and back to Nelson Bay. Tahlee House is a convict built homestead, with historic ballroom and billiard room, a botanical collection and a convict built harbor.

If anyone wishes to visit the beautiful Hunter Valley Gardens we could arrange a car convoy for Tuesday. So let us know if you are interested.

VK3news Gippsland Gate Radio & Electronics Club

Bruno Tonizzo VK3BTF

Hamfest 2014

The Gippsland Gate Radio & Electronics Club Hamfest will again be held at the Cranbourne Public Hall, located at the corner of Clarendon St and High St, Cranbourne, on **Saturday 19 July, 2014, at 10 am. Entry charge is $6.00.** Melway map 133 K4.

See our web page at *www.ggrec.org.au/hamfest* for all the details.

The Gippsland Gate Radio and Electronics Club meets on the first and third Fridays of the month at the Cranbourne Guide Hall, Grand St, Cranbourne.

Did you know that GGREC members built and maintain the following amateur radio repeaters and beacons?

6 metre repeater VK3RDD located in Cockatoo, on 53.575 MHz, CTCSS 91.5 Hz.

70 cm repeater VK3RLP located in Cranbourne, on 439.475 MHz, CTCSS 123 Hz, IRLP Node 6794.

70 cm repeater VK3RWD located in Drouin, on 438.575 MHz, CTCSS 91.5 Hz.

VK3RLP beacons on 1296.532 MHz and 2043.532 MHz located in Frankston. Please note that the beacons will soon be off the air for much needed maintenance but will be back on air shortly thereafter better than ever.

If you have an interest in amateur radio or electronics in general, why not come along to one of our meetings and join in with the fun or visit *www.ggrec.org.au* for more information.

Harry Angel Memorial 80 m Sprint 2014

Date: Saturday May 3rd 2014. 1000 UTC - 1146 UTC

The **Harry Angel Sprint** is an annual 80 m contest event, first established in 1999, to commemorate the life of *Harry Angel VK4HA* who, at the time of his death at the age of 106, was the oldest licensed amateur in Australia. The duration of the contest is 106 minutes in commemoration of Harry's age.

The "HA" is held on or around the first Saturday in May each year. The contest is open to all grades of licence holder and is particularly suited to operators new to contesting. The rules for this year's event are unchanged from 2013.

Place winners in the **Harry Angel Contest** are also eligible to claim points for the WIA Contest Champion (Peter Brown) Trophy.

Full information regarding the contest is available on the WIA Contest website ***http://www.wia.org.au/members/contests/harryangel/index.php*** and R&DRC website: ***http://www.redclifferadioclub.org.au/***

Kevin Johnston VK4UH
Manager, Harry Angel Sprint

VHF/UHF - An Expanding World

David Smith VK3HZ
e *vk3hz@wia.org.au*

Weak Signal

Propagation conditions are tailing off as the season cools. However, the remote installation set up by Rob VK6LD in Albany is continuing to produce results. On the evening of March 1st he worked across to Brian VK5BC with 5x5 reports over a distance of 1900 km.

Unfortunately, many people mothball their VHF/UHF systems once the summer is over. However, ducts still occur throughout the year, although not with the intensity of the summer. On the VK Logger, there are still frequently reports of beacons being heard across the south – VK3 to VK6 – and from VK4 to ZL. Most don't result in contacts because there's nobody on at the other end. So, rather than bemoaning the lack of propagation, keep an eye on the Hepburn Tropo Ducting predictions and the VK Logger and an ear on the beacons and you might be surprised what you discover.

VK3 Microwave Activity Day

Mike VK3KH reports on the recent VK3 Microwave Activity Day:

Monday 10th March was the Labour Day holiday here in Victoria, so it was planned as a Microwave Activity Day.

The day proved to be a pearler, both weather wise and activity wise. With an early start, most stations were set up and operational by 8.30 am local time. The idea was to make as many contacts as possible above 1 GHz, with 144.150 being used for liaison. I set up on Arthurs Seat on the Mornington Peninsula with spectacular views over the Bay, and it was not long before I was rewarded with contacts. Some signals were noticed on 1.2 GHz, and I quickly worked VK3XL (at home), VK3RR (at home), VK3AXH on Mt Buninyong, and VK3XPD at home.

Over the next three hours I worked stations on 1.2 GHz, 2.4 GHz, 5.7 GHz and 10 GHz. In total, I worked 12 callsigns including the stations above plus VK5DK, VK3ACG, VK3AIG, VK3ALB, VK3PY, VK3KQ, VK3MQ and VK3HY. In all approximately 18 operators were active that morning.

I also know that Rex VK7MO on Mt Wellington near Hobart completed an SSB contact with VK3PY, and digi contacts with VK3HY and VK3MQ. Unfortunately, I had chosen the wrong side of the

hill to operate from. Great work Rex et al.

It is encouraging to see microwaves alive and well in Victoria and South Australia. Thanks to all who took part!

GippsTech 2014

If you haven't already, it's time to plan your attendance at GippsTech 2014, scheduled for the weekend of July 12th and 13th. Refer to the VK3BEZ web site for more details: *http://www.vk3bez.org/gippstech.html*

GippsTech is the premier conference for VHF/UHF/Microwave enthusiasts. However, presentations are not limited to that, covering a wide range of interests for all radio amateurs. It's also a great opportunity to catch up face to face with fellow enthusiasts at the informal Friday night get-together, the Saturday dinner and during breaks in the conferences. Hope to see you there.

Please send any Weak Signal reports to David VK3HZ at *vk3hz@wia.org.au*

Digital DX Modes

Rex Moncur VK7MO

New 24 GHz EME world record

On 5 March 2014 Rex VK7MO and Charlie G3WDG extended the 24 GHz EME record to 17405 km using JT4f. Both stations ran 10 watts and Rex used a 1.14 metre dish in a portable operation from Mt Wellington while Charlie operated from home with a three metre dish. Rex and Charlie had made some four unsuccessful attempts on earlier occasions when the degradation and spreading were at a minimum. For the successful attempt they adopted a different strategy and looked for a time when the lunar declination gave higher elevations at each end to reduce atmospheric losses and also a longer common window to give more time for averaging the very weak signals. By Rex operating from Mt Wellington at 1270 metres this reduced the amount of atmosphere at his end giving an estimated improvement of 2 dB over operating at sea level. Even so signals were marginal and with cloud cover much of the time it took over an hour to complete the QSO. The URL below is a video of a talk which Rex gave on how this QSO was achieved: *https://www.youtube.com/watch?v=XfReoQOWqUo*

Please send any Digital DX Modes reports to Rex VK7MO at *rmoncur@bigpond.net.au*

Meteor Scatter

Dr Kevin Johnston VK4UH

Only a short report this month. The general level of activity of 144 MHz meteor scatter activity (MS) was low throughout March, with no significant meteor showers occurring. Conditions for 'random' meteor scatter activity during the routine activity sessions (07.00 – 08.00 EST) on Saturdays and Sundays were reported by most active stations as being only average or poor, even for this season of the year. Return rates were low through most of the sessions with pings being reported as short and faint for the most part. This was certainly the experience of most operators up here in VK4. The number of stations on-air from the southern states has also been low.

Normally towards the end of summer, at least for northern stations, the shortening of the days and the later sunrise brings the activity sessions closer to the pre-dawn peak when useful meteor returns are more frequent. During summer itself the angle of the terminator, the line dividing day and night on the earth's surface, and the lack of daylight saving here in VK4 usually means that we are already well into daylight and past the optimum pre-dawn peak of meteor activity before the normal activity sessions start at 07.00 EST. The end of daylight saving in the eastern states (6 April) will have occurred before this gets to print which will place the VK4 stations an hour further into daylight at the start of the activity sessions.

Hopefully also there will have been some enhanced activity to report from the Lyrid Meteor Shower (22nd April) next month.

As mentioned in previous columns there is still great interest from active MS stations in SE VK4 and northern VK2 to participate in skeds with stations in the north and far north of VK4. No stations have yet come forward and I would like to extend the invitation again for anyone with even a modest two metre station with digital capability to get in contact with me to arrange some trials. There has been a suggestion for a portable station from Brisbane travelling to the Cairns or Port Douglas area to do some MS tests.

Mention was made last month of the new release of WSJT version 9.7. One anomaly has come to light here while running FSK441 in the new version, that being attempts to force a decode on pings received during the last few seconds of a period result in a decode of the outgoing message from WSJT not the received signal. This is really confusing to see on the screen. It is not clear if this peculiarity is only in the system here (IC-9100, Signalink USB interface and laptop) or whether this is a general problem to be aware of. I wonder if anyone else has noticed or can reproduce this anomaly.

Please send any reports, questions or enquiries about Meteor Scatter in general or the digital modes used to Kevin VK4UH at *vk4uh@wia.org.au*

VK2 news

Tim Mills VK2ZTM
e *vk2ztm@wia.org.au*

ARNSW will be holding their AGM at 10 am on Saturday, 3 May, 2014 at the VK2WI site, 63 Quarry Road, Dural. Committee nominations closed in late March with nine nominations, the number required to form a full committee, so an election was not required.

Later this month ARNSW will have the bi-monthly Foundation course over the weekend of Saturday 17th and Sunday 18th, with assessments for all licence grades on the Sunday. Numbers are limited and bookings have to be made by an email to *education@arnsw.org.au* or a telephone call to 02 9651 1490. There are many assessors within the Sydney region who may like to assist ARNSW on the assessment Sundays. Contact the ARNSW education team via *education@arnsw.org.au* Many attending the ARNSW courses and assessments are from regions beyond Sydney which is good for ARNSW's numbers but not so good for local activities. The upgrade course on Monday evenings is now well under way.

On the following Sunday, the 25th, in the morning the bi-monthly Trash and Treasure followed at 12 noon by the Radio Home Brew & Experimenters gathering. All events are held at the VK2WI site at 63 Quarry Road, Dural.

The VK2WI news sessions on Sunday occur at 10 am with VK1WIA news followed by VK2WI News. In the evening at 7.30 pm the session has VK2WI News and the ARRL DX report. The script of that week's transmission is on the ARNSW web site *www.arnsw.org.au* usually on Monday.

Waverley ARS have a Foundation weekend and assessments scheduled for the 24th and 25th May. Inquiries by email to *education@vk2bv.org* Any clubs or groups in VK2 holding courses or assessments in July or later and would like mention in these notes please send details via the email address at the top of the column.

We remind readers that whilst Morse code competence is no longer required, CW remains a popular mode. Ross VK2ER conducts on behalf of ARNSW the Thursday evening operator sent session at 2000 hours EST on 3550 kHz, under the call VK2BWI. Ross also has some daytime sessions on 40 metres. You can contact Ross in the callbacks conducted at the end of the 3550 Thursday session. From VK2WI, the automated Morse transmission is to be found on 3699 kHz. Operational almost 24/7 (off at broadcast times and when some limited other operation emanates from the site) it provides both training and propagation indications. The link to the text for the 3699 transmission is to be found on the ARNSW home page.

In March the Newcastle based Hunter Radio Group held their AGM and elections with little change in positions. Patron is Les VK2RJ; President Len VK2ZFD; Vice President Maurie VK2CD; Secretary/Treasurer Rodney VK2CN; Repeater Officer Greg VK2HT; Beacon Officer Graham VK2FA; Contest Officers Jamie VK2YCJ, Grahame VK2FA; Broadcast Committee Maurie VK2CD, Michael VK2CMM, Peter VK2TV and Rodney VK2CN; Social Secretary Pauline VK2GTB and Program Officer Len VK2ZFD.

NSW WICEN members can partake in a four day first aid course being conducted by one of their associated squads – Bushwalker's Wilderness Rescue Squad – at North Wahroonga on the weekends of 3rd and 4th and 17th and 18th May. *www.bwrs.org.au*

A month to go until the 39th annual Oxley Region two-day field day at Port Macquarie. The event will again be held in the Tacking Point Surf Life Saving Club hall in Matthew Flinders Drive, Lighthouse Beach, which is at the southern end of town. The Field Day dinner will be at the Port Macquarie Golf Club, also on the southern edge of town on the road to Laurieton, on Saturday evening. This is all over the June long weekend, Saturday 7th and Sunday 8th June. As Port Macquarie on the mid north coast is a popular destination, book your accommodation as soon as possible. Check out the Oxley web site *www.orarc.org.au*

73 – Tim VK2ZTM.

Attend

Oxley Region ARC Inc. Field Days 7 - 8 June

See page 48 for details

VK4news QTC

Mike Charteris VK4QS
e *mikevk4qs@gmail.com*

An opinion from Mike Charteris VK4QS - Chairman, Queensland Advisory Committee, WIA, and WIA nominated member of the QAC

May Day, May Day, May Day - SOS, SOS, SOS

I would like to start the May edition of QTC with a very poignant play on words that perhaps we all will understand immediately. And that is 'May Day', a celebration in May, of brotherhood in the cause that unites us all. What about 'Mayday', a word that derives from the French Venez M'aider, meaning 'come help me'.

A Mayday situation is one where a vessel, aircraft, vehicle, or person, or perhaps in this case the WIA, is in grave and imminent danger. What about S-O-S, often quoted as Save Our Souls, and apparently first used by RMS Titanic on 12 April, 1912 whilst sinking. So what does this have to do with 'US', the amateurs of Queensland, if not Australia you may ask?

At this time it has everything to do with membership of our national body, the Wireless Institute of Australia. Last month it was announced that the membership fee would rise to $95.00 per annum. Yes, per annum, per year. Many will bemoan the rise as nothing more than a money grab and a price hike that they will console themselves with as the reason 'they' left the WIA. What about another turn of Latin phrase, 'per diem'. Let's give that a chance to evaluate your decision to leave the WIA or for that matter your constant apprehension to actually join the WIA. 'Per diem', or 'per day' when applied to that ever growing Everest called the WIA membership fee, sees one apply the following calculation, $95.00 divided by 365 days a year. Now I am no Rhodes Scholar, but I can do the math, and it works out to be the astronomical sum of just 26.027 cents a day with three decimal places for the diehards. Who in their right mind could argue that somehow they could not manage it, approximately $1.83 per week to equate to $95.00 per annum.

Oh, and we hear them shout from the roof tops in unison by choir, *'there's no value in being a member of the WIA'*, the saddest of all cries. And what better time to introduce our other emergency signal SOS; Save Our Souls - there might well be some truth in that my friends. Or more to the point, a play on words 'Save Our Station', for this is the crux of all the dissention, moaning and gnashing of teeth that awaits us not far down this weary track in the 21st century. For every amateur that is a member of the WIA, there are three that are not. Three non-members that are happy to let the primary quarter carry them year in and year out. Check numbers with Mal.

The arguments of the non WIA members are many and varied not least the old chestnut being *'I had a blue with the WIA back when Methuselah sent Morse code for Jerusalem'*. C'mon guys, get a grip, move on, live for the now, join the WIA and protect our future and our hobby's future while we still can.

Every Foundation licensee in this country has a fundamental obligation to be a member of the WIA. It was not the ACMA who said *'Hey let's create the Foundation License to increase the number of amateurs in Australia'*. The ACMA did not say *'Let's create a very basic radio license and allow people to get on air and have a chance to partake in the greatest electronic hobby in the world'*. No, no, it was the hardworking people and visionaries at the WIA, people like Michael Owen who probably had plenty of sleepless nights working out how to word the proposal to the ACMA, for 'you' the Foundation licence holder. So next time, and before you sit down at your station, have a good long look into the mirror and ponder on the fact that it was the hard work of the WIA who made your version of the amateur radio hobby possible. It behoves every Foundation licence holder to embrace the WIA membership with both hands, and support the WIA with every breath, for without the WIA, might well you still be part of a citizens' radio environment.

We as amateur radio operators need to *'unite'* under the one and only banner, the WIA, before it is too late to 'Save Our Stations'. Each year our numbers dwindle by natural attrition of old age, let alone those who decide they no longer need to be in the WIA for one reason or another. So just pause for a moment and consider this as a very possible scenario. The WIA continues to dwindle in numbers, till eventually all the old and bold go to God and the remainder hang on by the skin of their teeth till there is no-one left in the WIA. Hey that's fine as there are still two thirds of Australian amateurs who are not in the WIA. Oh, is it really, so who now will liaise between the Government and the hobbyist amateur; not the ACMA

I suspect! All of the work done by the WIA, mainly volunteers, on your behalf, as a non WIA member, be it exams, call sign allocation, fighting for your so-called amateur radio frequencies will, I strongly suspect, be put to tender for a commercial company to run. Forget about such good will as the QSL services as they will disappear in a flash. All this will mean but one thing, price increases, and if you thought ten bucks was a kick in the backside, then be prepared to be paying in the tens if not hundreds as time progresses under a commercially run operation.

They will squeeze us until we can no longer afford to pay the fees let along any extras. And then when they have milked us dry… the show will be over and amateur radio finished in this country, and the ACMA will finally be free of the burden we so often seem to be for them. If by chance this is the version of the future you desire, then just continue to bludge on the card holding members of the WIA. As far as I am concerned if you join the WIA you are supporting the future of amateur radio in Australia for everyone.

So where do we start, my friends. I believe we start at the Clubs by striving to achieve 100% WIA membership at club level. Be it by a club WIA payment scheme or by individual financial commitment. God knows it is in your best interest as a club, as for one, your yearly insurance will be as little as it can be with all your members supporting the WIA. The next step is to encourage those amateurs who are currently not WIA members of the benefits of being in the WIA, the world's oldest national radio body. Remind them of their obligation as amateurs to support their mates in the WIA who are fundamentally carrying all the non WIA members in this country. In Australia, we as Australians are known the world over as a people who look after our mates, whether it was in the trenches during the Great War, or in times of need and disaster. Let us not be seen wanting when it comes to supporting this great body of ours, the WIA. Now, is it perfect? No, but can it improve, yes, and how much better would it be as an organization if we could proudly proclaim to the world 'that every amateur in Australia is a WIA member'. How much better could our magazine be if every amateur contributed just a little bit to *AR* magazine? How much less would it be a year if every amateur was a member of the WIA, proud, strong and united in this brotherhood of radio?

Photo 1: Andy VK4TH in the further tent, and Kerry VK4FKDB in the caravan, enjoying the JMMFD event in some comfort in the very attractive surroundings of Bowenville Reserve.

There's no quick solution my friends, but we alone are the solution in unison and with a loud voice, commitment and action. We can grow and develop the WIA year by year into the best national body of its kind in the world. But we must do it together, united as one voice, not divided and disgruntled with no goals for our future. So, now that you have read this, talk about it with your club members, come up with ideas to improve what we have. Embrace the non WIA members in your area, engage them with your club and encourage them for all the good reasons there are to join the WIA. In the end, I have given you my words. It is up to each and every one of us to undertake the actions to make it possible every day so we might grow united as one in the near future. For *'United We Stand and Divided We Fall'*.

For the non-WIA amateurs reading these words, take heart, for the hand of friendship is being offered to you. Stop for a moment and walk a mile in our boots, we who believe that not only you, but all amateurs in Australia would, and are better off under the membership of the WIA. Surely you can't honestly in your hearts believe that it is fair and just for you not to be in the WIA. But at the same time accept with both hands *'All'* the benefits that come your way as an amateur in this great country of ours. In the end, I have never been told of a good reason not to be a member of the WIA; if there are, then, I have never heard them.

Now, on to the club news.

Photo 2: Ray VK4HOT working on the Par Electronics 20 metre Omniangle antenna at Weasel Park.

Gold Coast Amateur Radio Society

This month we hear from Tim Armstrong VK4LZE, President of the Gold Coast Amateur Radio Society. Tim tells us that the past year has seen extensive repairs undertaken to the clubhouse. This included the major task of removing the Society's asbestos roof, and its replacement with a new shiny galvanized iron roof. One of the consequences of the new roof was the removal of all the antennas, which gave time to re-evaluate the requirement of both the radio roof and the antenna farm. Tim says this has resulted in the complete replacement of all the cabling and coax runs to the main tower. This was in addition to the removal and servicing of the rotator, the refurbishment of the tri-band Yagi and the replacement of fasteners with stainless steel ones. Not to mention a bit of tree trimming here and there to give the Yagi free reign. And after all the hard work was completed, what better way to put the icing on the cake than procuring a couple of more modern HF radios to complete the radio room. The society is now well armed with three complete operator stations ranging from HF to 23 cm complemented with a computer at each station. It looks like we might all be hearing a lot more from VK4WIG on the airwaves and in the contest logs. You can catch up with the Gold Coast boys each Wednesday night on their 80 metre net, on 3.605 MHz from 1930 UTC. Thanks Tim good to hear of the news and keep up the great work at the Gold Coast.

Lockyer Valley Amateur Radio Club

Al Shannon VK4SN went it alone for the John Moyle Field Day. Al tells us that he packed up the bandwagon and radio gear and headed off to the 'Hill', QG6EK, out the back of the Lockyer Valley, not far from his QTH. Riding shotgun with Al for a few hours was none other than club President and ardent DX chaser Ken Bawden VK4QH. Upon arrival at the Hill, Al and Ken got the wagons in a circle and set up the gear. This included an HF tri-bander on a 10 metre pump up mast, as well as a vertical and a dipole for 80 metres that hung off the pump up mast. Power for the operation came from a kW generator with backup by way of a battery charger and 2 x 6 V 120 A/H batteries. Once everything was honky-dory they got stuck into calling for John Moyle Field Day points. Sadly contacts this year were not as great as 2013, and it was pretty slow going

With band switching between 20, 40 and 80 metres, Al tells us he finished up around midnight after a pretty big day of it. When morning came it was discovered that the forecast was to be 40 degrees with possible thunder storms. That was enough inducement to pack up and head home to beat the heat let alone a possible storm. Al reckons that although the contest was a bit slow, it gave him a good opportunity to check his field day equipment was still in good order, which in essence is exactly what the John Moyle Field Day is all about. In other recent news Al reports that VK4SN has been confirmed as setting a new world record on 28 MHz high power for his participation in the JIDX contest. So congratulations Alan, keep up the great work.

Tablelands Radio and Electronics Club

This month we hear from Stu Dunk, President of TREC about the club's commemorative station VK4XQA.

VK4XQA is possibly one of the most important centenary call signs this state has ever seen aired. It commemorates the first ever licence issued, 'XQA', to a Queenslander by the name of Marcus Brimms, on 7 February, 1914. Also issued on that day was 'XQM', going to Andy Couper Jnr. Both young men hailed from Mareeba, North Queensland, and had built spark stations to communicate with each other in this new-fangled hobby called amateur radio. Full details are available on the TREC website. Stu also tells us that TREC will be involved in the FNERA, Far North Endurance Riders Association. TREC will be providing field units at checkpoints to pass rider information back to base using amateur radio. These operations are great social events and assists with club members honing their skills for

portable and field operations that may be needed in an emergency.

Darling Downs Radio Club and Bunya Mountains Club combined John Moyle Field Day event

Neil Holmes VK4NF, Bunya Mountains club secretary reports that joint operation between his club and Darling Downs was a great success under the call sign VK4WID. The clubs joined forces for the John Moyle Field Day weekend with operations taking place at Bowenville Reserve, between Dalby and Toowoomba. The goal was 24 hours of operation involving eight operators spending the weekend camped there for the event. Another six members joined the team for a Saturday night BBQ. Reports so far suggest a good time was had by one and all, with nearly 600 contacts made over the weekend.

Central Queensland Amateur Radio Association

In the past month or so I have been sent many emails from Jack Chomley VK4JRC, President of the CQARA. Each one has contained photos and details of activities that have been going on at the club. Now between Jack, Ray VK4HOT and other members there is a heap of activity up there at their club location at Weasel Park. This place can only be described as a ham's DX paradise home away from home and perhaps the best way to see it is to visit the club website at *www.cqara.org.au* The club is a leading light in North Queensland and well worth joining if you live in the area. So keep up the good work boys, you all look like you are having a lot of fun.

Well folks, that's it for this month. I trust you might discuss at club level the commitment of your members to join and support the WIA, for the club's sake, and also as a show of universal support for the organization that looks after us, the WIA. For all the clubs who received the email I sent requesting news, well I applaud and heartily thank those that replied. For those that did not reply, I can only wonder why your club has no news and nothing to share with us, in *your* section of *AR*, being VK4News. It only needs to be a paragraph or so, and even a photo would be good.

So have a think about it my friends. All the best until next month. 73. Mike VK4QS.

Photo 3: Ray VK4HOT, at left, and Jack VK4JRC apply their 'skills' to a piece of timber at Weasel Park.

Attend

South East Radio Group 50th Anniversary Convention & Foxhunting Weekend | 7 - 8 June

VK6news

Keith Bainbridge VK6RK
e *vk6rk@wia.org.au*

Hello one and all, May already!

Input was a bit last minute this month and I'm finishing with one hour to deadline. So let's get on with it.

First up the **Bunbury Radio Club**, from Norm VK6GOM.

At this year's Annual General Meeting the following office bearers were elected to the committee of the Bunbury Radio Club:

Neil VK6FNKS
President

Brian VK6TGQ
Secretary

Bob VK6TJ
Treasurer

Fergy VK6VB
Committee member

Danny VK6FDRW
Committee member

Alek VK6AP
Committee member

The club now has nine members working to upgrade from Foundation to Standard licences, an exceptional outcome. This has resulted from the enthusiasm and leadership of the club's President, Neil VK6FNKS. The upgraders are using the online courses provided by the Queensland based Radio and Electronics School supplemented with support from other members. Neil runs a twice weekly net on the local repeater to help members with their studies. Who knows, perhaps they might carry on to an Advanced licence? We are also working with a couple of new potential amateurs to obtain their Foundation licences.

At the previous monthly meeting there was, as the politicians would say, robust discussion on whether non-financial WIA members should pay a small surcharge to cover costs of WIA related expenses, such as insurance and the like. In the end it was agreed that such a charge would be counter-productive to general morale.

Photo 1: The HARG dipole installation, courtesy of Jamie's cherry picker.

Shaun VK6FSAP and Brian VK6TGQ have undertaken to refurbish an old Bunbury Radio Club website which appears to have remained untouched for some time. They will look at making it relevant to today's membership and using it as a vehicle for publicising the club and attracting new members.

Finally, any south west based amateur is more than welcome to join and participate in our activities. The annual fee is only $20.00. Hams wishing to join can contact the club via our Secretary, Brian Andrews, on 0403 975 953 or *vk6brc@wia.org.au*

Thanks Norm, it's good to see the south west coming back to life!

Next up is the *Hills Group*

News from HARG - The Hills Amateur Radio Group.

HARG has a new President! Congratulations to Miles VK6MAB who generously offered to stand for President after Martin VK6ZMS was forced to stand down due to a change in work schedules. Miles was elected unanimously at a recent General Meeting and has dived straight into the job by updating our Facebook page and starting the organisation for HARGfest. If you're one of those people with a Facebook account, we would love it if you were to 'like' and possibly share the new HARG Facebook page *https://www.facebook.com/hillsarg*

At a recent Social Day meeting we were fortunate to once again have the assistance of Ray's friend Jamie with his cherry picker. With Jamie's help we have removed the malfunctioning six metre beam for repairs and installed a Cushcraft D3W WARC band dipole kindly donated by Martin VK6ZMS. The club now has all HF band capability from 80 metres to 10 metres.

Our annual **HARGfest** white elephant sale will be held on

Saturday 10 May at the clubrooms. Sellers may set up from 11.00 am and buyers are welcome from 1.00 pm. Entry fee is the usual $5 for everyone and sellers' tables are free. To book a table please email *secretary@harg.org.au* Hamburgers and sausages in a bun will be available from around midday. You can also purchase cold drinks, tea and coffee, cake and chocolates. We will hold our usual raffle and door prize. HARGfest is a great opportunity to catch up with friends and pick up those hard-to-find bits and pieces. We look forward to seeing you there.

HARG meetings are held twice a month at our club rooms near the corner of Brady and Sanderson Streets in Lesmurdie. Our social and practical meeting is held on the second Saturday of the month and our general meeting, often with a technical talk, on the last Saturday of the month. Doors open at 1.00 pm for a 2.00 pm meeting start. More information can be found at *www.harg.org.au*

Cheers and 73 until next time from Bill VK6WJ for HARG.

Thanks Bill and best of luck to Miles as your new President.

The **WA VHF Group** have been in touch once again, this report from Bob VK6KW.

International Museums Weekends

The WAVHF Group has always had a strong association with the Wireless Hill Museum. This museum is in the original buildings constructed in 1912 and formed part of the coastal radio communications network until recent times. It is the only station of its kind left in Australia.

Recently, the City of Melville has invested in the final stages of full refurbishment of the Museum and is negotiating with the WA VHF Group to lease part of the premises for a permanent active radio shack. We are therefore keen to participate in the 'International Museums Weekends' event planned for 14th/15th and 21st/22nd June this year. See *http://www.radio-amateur-events.org/IMW/*

Photo 2: SMART Scouts roughing it.

While this Museum is not currently open to the public, part of the aim of the exercise is to demonstrate to Wireless Hill management that the museum can be populated with practical, hands on activities capable of attracting a wider audience. The proposal is to invite other clubs to participate in the operating and/or by setting up a display or an activity available for 'hands on' public participation. This could take the form of a specialist transmission mode, a 'home brew' display, kit assembly activity or demonstration of some other aspect of amateur radio. Perhaps 'the best mobile station'?

We have also negotiated an opportunity for a portable station to be set up at the RAAFA WA Air Force Museum at Bull Creek! Perhaps for the PARG trailer, if available! Contact Bob VK6KW for details on *rlockley@bigpond.net.au*

Although this international event is spread out over the whole (of both) weekends, the VHF Group plans to focus on the first weekend initially and hopes to be able to fill the roster of activities and advertise them as widely as possible in order to promote amateur radio. This event is not a competition but will involve trying to make contact with other participating local and international stations.

Hams have access to numerous bands and modes (even satellites) and it would be perfect if we were able to display/demonstrate as many of these as possible here and at other locations, for example, as NCRG has a museum of its own, operations could be conducted from there and advertised as such.

Will you or your club like to be involved in one or more of the activities/demonstrations. Please discuss with your club members and advise us of your willingness to participate and what possible activity you could bring to the forum.

Graeme VK6LV and Bob VK6KW, Hon Sec Museum Liaison, WA VHF Group Inc

A very interesting challenge Bob, I wish you and the group well and let's see if I can persuade the NCRG to throw open its doors the second weekend maybe.

The *Scouts WA* have been out and about again, this from Miles VK6MAB.

The Scout Members Amateur Radio Team (SMART) participated in the John Moyle Field Day by camping at Manjedal Scout Activities Centre, Byford, south east of Perth. Bob VK6POP, Tony VK6HAM, Colin VK6HWD, Sam VK6KSA and Miles VK6MAB spent the Saturday and Sunday morning enjoying the field day, using two radios and dipoles strung high up in the gum trees.

Solar panels and generator provided the power, the sound of the latter echoing through the surrounding bush land. Whilst our score wasn't exciting, the meals and companionship made it a great weekend and discussions are already underway for the next field day outing. Regards from Miles VK6MAB.

Thanks and glad you all had a good time.

Finally this month an update from the **NCRG**.

At our AGM last September Steve VK6IR put his hand up for President and was voted in.

However after a couple of months his workload increased dramatically and he felt unable to continue. Stuart VK6LSB offered to fill the gap until the next AGM and was accepted as acting president, and he is doing an excellent job. So the Committee is Acting President: Stuart VK6LSB. Vice President: Keith VK6RK. Secretary: Wayne VK6EH and Treasurer: James VK6FJA.

Work is going well on our trailer mounted tower and also refurbishing of a three element SteppIr beam that had been subjected to some UV damage. We intend to have a big move around of all the beams on all the towers in the near future to give us a better take off rather than having beams firing into each other at the same heights.

Also we plan to install three six over six over six element Yagis on 15 metres to give a better edge in the contests. These beams should be here in the next few weeks so work on the 30 metre tower they will be mounted on is continuing in earnest.

Lots of other things are happening, including an update of the NCRG website *ncrg.info* which was long overdue. Our webmaster has been under the pump somewhat over the past year so I've offered to 'have a go' but please don't be too critical 'cos I have no idea what I'm doing.

The club is planning a foray into the ILLW weekend and permission has been obtained to operate from Guilderton/Moore River Lighthouse. Preparations are well under way so it will be nice to get out in the middle of winter and operate from under canvas, he said sarcastically!

That's about it from the NCRG and from me also, so until next month, stay safe and enjoy your *AR*.

73, Keith VK6RK.

Oxley Region Amateur Radio Club Inc

Port Macquarie NSW

Presents the 39th Annual Field Days
June Long Weekend
Saturday & Sunday
7-8th June 2014

Contact Field Day Co-ordinator: Henry Lundell VK2ZHE. Email: vk2bor@orarc.org
Location: Tacking Point Surf Lifesaving Club Matthew Flinders Drive Port Macquarie.

General interest displays.
Trash & Treasure Sunday only
Trade displays Sunday only
Fox hunts Saturday & Sunday

Entry only $5

www.orarc.org for more details

Field Day dinner Saturday night
Food Available
Free coffee, tea & biscuits
Soft drinks for sale.

Oxley Region Amateur Radio Club Inc
PO Box 712 Port Macquarie NSW 2444

Station Callsign VK2BOR

Talk-in frequency 146.700 MHz (91.5 Hz CTCSS)

VK3 news Amateur Radio Victoria

Jim Linton VK3PC
e *arv@amateurradio.com.au*
w *www.amateurradio.com.au*

AGM this month

The Annual General Meeting of the Wireless Institute of Australia Victorian Division – Amateur Radio Victoria, will be held on Tuesday 13 May, at 40g Victory Boulevard, Ashburton, at 8 pm.

This is a time to socially mix with members and to hear annual reports from the President, Treasurer, Secretary and other office-bearers. Formalities to transact business matters will be kept to a minimum, to allow the attending membership time to ask any questions.

Expected to be heard are reports on award activity, HMAS Castlemaine, the International Lighthouse & Lightship Weekend, repeater upgrades and installations including Mt Stanley and the VK3BWI facility, and the World Digital ATV QSO Party. A light supper will be served at the end of the reports and presentations. The new 2014-17 Council is to be announced.

Keith Roget Memorial National Parks Award - enhanced

This award, which began in the early 1970s, encourages portable operation in Victoria's National Parks, now numbering 45. It was renamed in the 1980s after Keith Roget who began the award and did so much for the WIA. With smaller transceivers now available and targeted publicity by an enthusiastic awards manager, Tony Hambling VK3VTH, more people are venturing into the parks.

Considerable thought has been given to enhance the KRMNPA to more appropriately recognise the few higher achievers who do a lot to promote portable operation. At the same time, take this long-running award into a new era.

The rules now include Merit Plaques. These recognise those who have achieved the 'Activated all National Parks' or 'Worked all National Parks'. A 'Grand Slam' plaque is also available for working from, and to, all national parks. To check out the full rules visit the Award section on our website. Many listen for the national parks on the bands, and a special activation period will be held on Friday 14 until Sunday 16 November, 2014.

In July we will have details of the 'Master Class - Portable', an event to cover what is being done by those who operate portable stations and how to join this growing aspect of amateur radio.

Standard Bridging and Foundation training

Enrolments are now open for both the quality Foundation licence session to be held on 14/15 June and the Standard Bridging Course starting on 2 July, both at the Amateur Radio Victoria office.

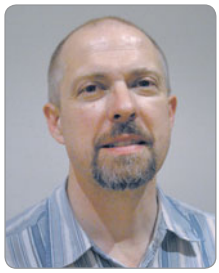
For those wanting the Foundation licence, you can order a copy of the study and operational practice guide book, at $26 delivered Australia wide, through the secure online bookshop at *shop.amateurradio.com.au*

To enrol in the Standard Bridging Course you must already have a Foundation licence as the experienced and dedicated instructor, Kevin Luxford VK3DAP/ZL2DAP, covers the additional knowledge of the Standard licence syllabus.

Those taking part commit to attend training every Wednesday at 6.30 pm, on July 2, 9, 16, 23, 30, and August 6. Saturday August 9 at 9 am is for revision and Sunday August 10 at 9 am is assessment day. More information is available at the 'Get a licence' tab on the Amateur Radio Victoria website. To enrol in either class please contact the Education Team Leader Barry Robinson VK3PV on 0428 516 001 or at *vk3pv@amateurradio.com.au*

Participate

Harry Angel Memorial 80 m Sprint	**3 May**
VK Shires Contest	**7 - 8 June**
Winter VHF/UHF Field Day	**21 - 22 June**



VK7news

Justin Giles-Clark VK7TW
e *vk7tw@wia.org.au*
w *groups.yahoo.com/group/vk7regionalnews/*

Meet the Voice – Ross 2014

As the title suggests this is the annual state-wide gathering at the Ross caravan park where you can actually 'meet that voice' you have spoken to on the air. The event is run by the Sewing Circle net which is Australia's oldest amateur radio net and operates every day at 17.00 (local Tasmanian time) on 3.590 MHz. The 2014 event happened on 16 March 2014.

The gathering was well attended and the annual Sewing Machine Award for the most loquacious member of the Sewing Circle net in the previous year went to Geoff, VK7GW acknowledging his participation over many years with the net.

For services to amateur radio a special commendation was presented to Rod VK7TRF for the years he has devoted to the TFS, WICEN, Targa and Endurance riders as a communications volunteer.

The raffle of the Baofeng UV5RA hand held and a Nagoya dual band antenna was won by visitor Doug VK2YI. Thanks must go to Rod VK7TRF for bringing along a trailer mounted podium and PA system and Ray VK7VKV for conducting registrations and raffle ticket sales. Finally, a huge thank you goes to Dave VK3JKY and Claureen VK3KMB from TTS Systems for making the annual pilgrimage. David and Claureen have been great supporters of the Ross event for a number of years.

Photo 2: L to R – Geoff VK7GW receiving the Sewing Machine Award from MC Cedric VK7CL Photo courtesy of Alvin de Quincey VK7NDQ.

2014 VK7 Hamfest – save the date

The date has been set for the 2014 VK7 Biennial Hamfest. It will be on 15 November 2014. As usual the Hamfest is held at the well appointed Miena Community Hall in the beautiful Central Highland of Tasmania. It is hosted by the Central Highlands Amateur Radio Club of Tasmania. ICOM Australia has already committed to coming along and we are actively pursuing other vendors. Watch this space!

Repeater and IRLP node news

North-west repeater VK7RNW has undergone a battery upgrade thanks to Dion VK7DB and Lucas VK7FSLB. The repeater now has a 500 Ah storage capacity. Hayden VK7HA let us know that the 70 cm repeater VK7RTC on Mt Wellington had its first Launceston contact with Joe VK7JG. Node owner Tony VK7VKT reports that IRLP Node

Photo 1: MC Cedric VK7CL addressing the Meet the Voice gathering. Photo courtesy of Alvin de Quincey VK7NDQ.

6239 in the northern suburbs of Hobart has moved frequency to 147.775 MHz simplex.

Northern Tasmania Amateur Radio Club

Congratulations to recent NTARC upgrade candidates Brendan VK7FESQ who passed his standard assessment and applied for VK7VIP and two advanced assessments in Ross VK7FAAB who has applied for VK7ALH and Greg VK7FLTR who has applied for VK7TT. If you hear these new calls on the air give them a call.

There have been some NTARC committee position changes with Lewis VK7FLPL resigning his position as NTARC President and Vice-President Idris VK7ZIR assuming the Presidency. Bill VK7MX has been appointed Vice-President and Public Officer.

NTARC's March gathering was a social get together at Lilydale Falls at the base of Mt Barrow. There was a good roll-up along with some overnighters in campervans. NTARC gatherings are known for their culinary delights and I have been told this night did not disappoint thanks to Kay, XYL of Peter VK7KPC, and Lorraine, XYL of Norm VK7KTN.

North West Tasmanian ATV Group

This is a reminder of the regular broadcasts and podcasts from VK7AX in north-west VK7. These happen on Monday, Wednesday and Thursday nights at 8.00 pm local. For more information about the broadcasts, please visit the Spectrum Tasmania home page at *http://www.vk7ax.id.au/spectrum/* The broadcasts go out on repeater VK7RTV and via Echolink Allstar Node 27328 and Echolink Node 152375 (VK7AX-R).

Radio and Electronics Association of Southern Tasmania

A huge thank you to Theo and Evan from ICOM Australia and Hirotaka from ICOM Japan who came down to Hobart and brought along many great items for display and demonstration at the inaugural ICOM Australia Annual Hobart Expo hosted by REAST Inc.

Photo 3: L to R - Rod VK7TRF receives the special commendation from MC Cedric VK7CL. Photo courtesy of Alvin de Quincey VK7NDQ.

There was a great flow of interested amateurs throughout the day who were able to see and play with the latest ICOM products. ICOM Australia, through their managing director Masahiko Komoda, has confirmed that they will be visiting Hobart annually for the Expo. A huge thank you to ICOM and especially Theo and Evan for bring the equipment along.

Our DATV nights are continuing to attract people interested in the hobby. Show and tell items included RF ammeters, Paul VK7PAH's useless box, Bakelite telephones, the IC-735, VK7HAL on self-amalgamating tape sources, vintage ARRL Lightening Ohms law calculator, bar code scanners, 24 GHz EME world record with Rex VK7MO and Charlie G3WDG, new PIRLP IRLP node, VK7FEET with LED light globes, Morse keys and early Macquarie Island communications. Our videos included episodes from Ham Radio Now, AmateurLogic.tv, RaspberryPis, and more. See you at the DATV studio Wednesday nights from 7.30 pm.

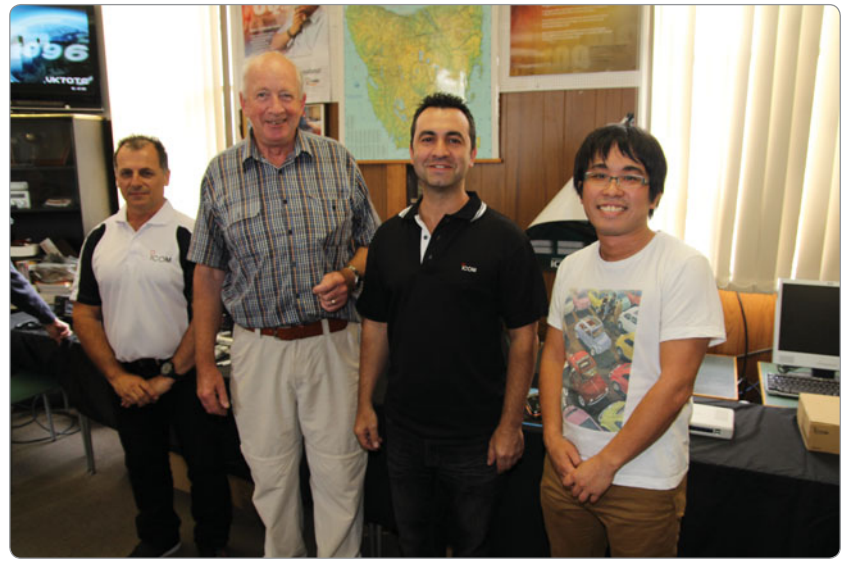


Photo 4: L to R - Theo Kalkandis (ICOM), Barry McCann (REAST), Evan Thalas (ICOM) and Hirotaka Horiuchi (ICOM) at the Hobart Expo. Photo courtesy of Tony Lathouras VK7VKT.

VK3news Geelong Radio and Electronics Society

Rod Green VK3AYQ

For many decades now the preservation of history has been one of the aims of our Society. Not only the documenting of significant events that have taken place, but also equipment that had once been used and was now obsolete. Collection of historical items was started by Bill Bond VK3BWS (SK) when Bill was given an old Dutch radio. This started him on a quest to find, restore and display items of interest, and so our museum was started. Bill collected and restored so much that the display area at our club rooms had to be extended more than once. News of this fine collection became well known, and people would travel long distances to view the collection.

One of the many display cabinets at the GRES museum.

Then we had a flood which submerged the collection underwater for a few days. When the flood damage was assessed it became clear that many items were damaged so much they had to be thrown away. Among the collection were old console type radios with veneer cabinets. In some cases the cabinets were able to be restored, but unfortunately many were beyond repair. It was also apparent that a new home would have to be found for the collection. It was about this time (1995) that the Geelong Rotary Club was leasing the Old Geelong Gaol. The Gaol had been decommissioned in 1991, and the Rotary Club were looking for suitable tenants.

We were lucky enough to secure two rooms for our museum in what had originally been an administration area. Display cabinets were installed and items of historical significance were put on display. These included valve radios both commercial and home built dating back to 1920 as well as old valves, transceivers, telephone equipment, measuring instruments and much more. In addition to this area we were also given the use of four unused gaol cells to store surplus items. These cells were stacked stone floor to stone ceiling. The job of curator was passed on to John Pile VK3ZPO (SK). Eventually John passed this job on to Keith Stickland VK3XKS who is our current curator. Keith not only looks after the museum, but also restores old radios, and looks after our valve bank. It is not uncommon for members of the public to call at our clubrooms to ask Keith to repair an old radio for them. Keith has restored so many radios that there is no room in our museum for them. These radios are proudly displayed at our club rooms. The surplus items stored in the gaol cells were eventually taken to our club rooms for appraisal. Many of these still had dried mud on them. Over the years items that we no longer required, but were in good condition, were donated to other museums, in particular the Military Radio Museum at Watsonia, and the Telstra Museum in Hawthorn.

Visitors to Geelong may like to visit our museum at the Old Geelong Gaol in Myers St, Geelong. The Gaol is open for a self-guided tour every weekend, and on public and school holidays from 1.00 to 4.00 pm.

WIA Traveller's Badge

New stocks of this very popular item have just arrived!

The first batch sold out in just a few days, so get your order in quickly.

The badge can be ordered from the WIA office or via the WIA website at ***www.wia.org.au/members/bookshop/about/*** under the "Merchandise" heading.

The price is $10 plus postage and packaging.

VK3news WANSARC

Mick Ampt VK3CH

WANSARC and the John Moyle Field Day 2014 at Bundoora Park

With about a week's preparation WANSARC had another go at a six hour stint in this year's John Moyle Field Day. There was just a crew of four, which grew to seven by the end of the week.

Persons operating this year were Rod VK3FAB on 40 metres, Mick VK3CH on 23 cm and a bit of 70 cm and two metres, John VK3FEZZ on VHF/UHF and Carlo on VHF/UHF. Others assisting and visiting were Johnno, who could not talk this year as his licence was yet to be renewed. (*Editor's Note: Johnno could have operated the Club station, provided he was being supervised by a suitably licensed operator.)* Later in the morning Urey VK3ATA visited and showed us all a very compact antenna.

When the gates opened at 6.25 the early crew started to set up and first contacts commenced around 8 am, getting part of the last three hour block and then the whole of the final three hour block. It was dark when we arrived, but with so many torches brought along the X7000 was up without much fuss and by then the sunlight was enough to finish off all the rest. Having so many hands on meant that getting ready was very orderly and quick. The co-operation between all was very smooth, almost automatic, one thing the club does really well.

Contacts were hard to get with not many stations on air until after 10 am, probably having a sleep in. But all the stations we did work were very good copy. Not bad for just a vertical seven metres above the ground and a 40 metre dipole strung through the trees. Rod really hammers it and he was constantly calling CQ and getting results on

Photo 1: The WANSARC crew at Bundoora Park for the JMMFD, with Rod VK3FAB on his TS-450S working 40 metres.

40 metres. The use of headphones to help one focus on the task was a wise move. People using radios other than their own needed a little time to work out band changes, but came up to speed quite fast.

It would not be a WANSARC event without food and Mick fed the crew with some snags, hamburger patties and chicken winglets. One batch of chook wings were Texas southern style. But the other batch were Smokey buffalo wing sauce 'seeded' with a whole bottle of Ghost Pepper sauce. It was very nice; the best bit was not until you swallowed it, that it then started to burn your insides. But those that ate them were still able to retain their voices and call CQ and chase JMFD stations... but they sweated a bit!

One of the highlights of the day was the EMDRC being heard on two little handhelds and being able to QSO with them. This was at a distance of 141 km.

Time passed and it was time to collate the logs. Rod kindly offered to type up the hand written log sheets ready for submission to the WIA contest manager, but made sure he could read all the handwriting before anyone was allowed to leave the site!

The day is an opportunity for anyone in the club to see what a radio competition is like. Getting to operate gear other than your own and a chance for Foundation calls to operate on other bands and modes excluded from them, at legal, full call power. Add to that a full catered free breakfast and it's a great half day out. Thanks to the crew for all their help and expertise.

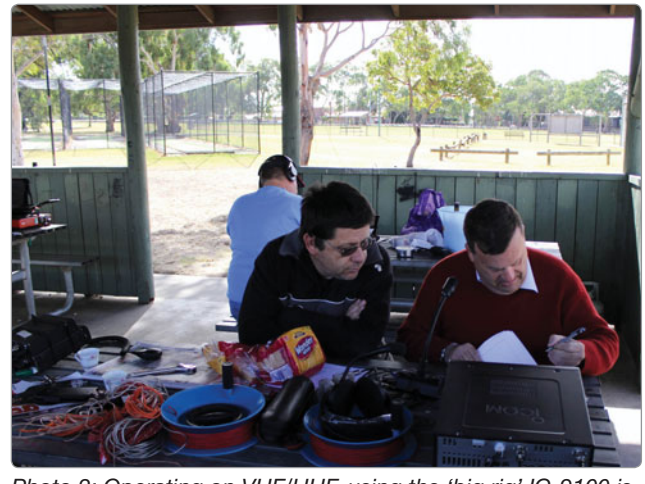


Photo 2: Operating on VHF/UHF, using the 'big rig' IC-9100 is John VK3FEZZ, as Johnno looks on.

DX-News & Views

Chris Chapman VK3QB and Luke Steele VK3HJ
e *vk3qb@wia.org.au*

March on the bands

Solar activity in the first week of March was at high levels, settling to quiet in the second week. A solar flare of magnitude M9.3 erupted late on UTC 12th March, and minor geomagnetic storms occurred on 13th March. Solar flux and smoothed sunspot numbers remained elevated through the month.

Good high band conditions continued, with 12 and 10 m open to Europe and Africa on short path in the evenings, even as late as local midnight. During local mornings, Europe and Africa have been worked on long path on 10 m. North America has been coming in quite strongly from mid-morning on 10 m on the short path. Also very good have been 20, 17 and 15 m.

North American stations have been worked on 160 m our evenings, and also Asia, including Japan, Korea, Thailand and Philippines. Europe has been worked in the 10 – 15 minutes before sunrise on 160 m.

Vlad UA4WHX has been appearing almost daily on most bands and all modes from various locations, including Bolivia, Peru, and Providencia I (San Andres & Providencia). Vlad's signals are usually not very strong here, but he nearly always seems to hear very well.

The Italian DX Team concluded a successful DXpedition to Zambia, VK9X/K7CO was Jon K7CO and Christian K7CXN on Christmas I, Zorro JH7AJT was on air for a week from Nay Pyi Taw, Myanmar. Chatham I was activated by a team of four operators as ZL7AAA, and Raivavae in the Austral I was activated by seven British operators as TX6G, and 9N7AA Andy is on air from Pokhara, Nepal until 23 May.

There were many contests on, including the ARRL DX and Commonwealth Contest. A number of special callsigns with the suffix 'KEDR' celebrating 80 years since the birth of the first man in space, Yuri Gagarin.

3B8/M0RCX, **Mauritius**. Robert M0RCX will be operating at least 2 – 3 hours per day while on holiday in Port Louis, 40 – 6 m using SSB and digital modes including JT65. He'll be using a TS-480 and TS-590 with 100 watts to a Hex beam. For more information see *http://www.qrz.com/db/3B8M0RCX*

HB0DRK/HB0YRK, **Liechtenstein**. Joerg DL4HTK and Torsten DO5AD will be on air from Triesenberg, Liechtenstein, 80 – 10 m.

V650XG, **Micronesia**. Haru JA1XGI will return to Pohnpei, operating on 40 – 6 m, CW, SSB, RTTY. The special callsign will celebrate his 50th year in amateur radio. For more information see *http://island.geocities.jp/v63xg/index.htm*

TF/EA5IDQ, **Iceland**. Jose EA5IDQ will be operating holiday-style, 40 – 10 m, SSB and Digital modes.

FY, **French Guiana**. Al F5FUA and Stef F5UOW will be on Ile Royale on HF bands, SSB, CW and maybe some digital modes. For more information see *http://www.qrz.com/db/F8FUA*

7QNL, **Malawi**. Remco PA3FYM will be on air for three weeks with the rather unusual callsign '7QNL' in southern Malawi. He'll be on 80 – 10 m, CW and SSB, with participation planned in the CQ WPX CW contest. For more information see *http://www.malawihf.org/*

Special thanks to the authors of The Daily DX, 425 DX News, DX World, NG3K's Announced DX Operations, and QRZ.DX for information appearing in this month's column. Interested readers can obtain a free two week trial of The Daily DX from *www.dailydx.com/trial.htm*

Some upcoming DX operations

The following table summarises some of the DX activations that may be of interest to VK operators.

Date	Call	QSL via	Information
2 – 28 May	3B8/M0RCX	EB7DX	Mauritius (AF-049). M0RCX, 40 – 6 m, SSB, Digital.
4 – 18 May	HB0DRK HB0YRK	DL5DRK	Liechtenstein. DL4HTK, DO5AD, 80 – 10 m, CW, SSB, PSK, RTTY.
9 – 15 May	V650XG	JA1XGI	Micronesia, Pohnpei Is (OC-010). JA1XGI, 40 – 6 m, CW, SSB, RTTY.
11 – 22 May	TF/EA5IDQ	EA5IDQ	Iceland (EU-021). EA5IDQ, 40 – 10 m SSB, Digital.
15 – 25 May	FY	Home Call	French Guiana, Ile Royale (SA-020). F8FUA, F5UOW, 80 – 10 m, SSB, CW.
18 May – 10 Jun	7QNL	PA3AW	Malawi. PA3FYM, 80 – 10 m, CW, SSB.

VK3news SPARC Rosebud RadioFest 203

Tim Conboy VK3TJC

Figure 1: The SPARC club logo.

Photo 1: Just one corner of the Rosebud RadioFest 2013.

Following the wonderful success of the inaugural RadioFest in 2012 the Southern Peninsula Amateur Radio Club (SPARC) held its second RadioFest during November 2013. Extensive planning and organisation was conducted by the committee and members building on the experience of the 2012 event.

The aim of the Rosebud RadioFest was once again an opportunity for traders to sell their wares, and for attendees to make this a memorable event to socialise with fellow amateurs and attend several excellent technical and regulatory presentations.

The Rosebud RadioFest is very fortunate to have an excellent venue, being the main hall of the Eastbourne Primary school at Rosebud. This venue provides ample room for trader's tables, adjacent grounds for outdoor displays and school classrooms for presentations. The school Parents and Friends Association once again provided excellent catering with outdoor seating for socialising.

Participation at this second RadioFest - both traders and attendees - was significantly higher than the 2012 event. The increased number of traders and associated tables provided the attendees with a great selection of interesting hardware for sale and many bargains.

An important feature of SPARC RadioFests is to provide interesting keynote speakers and associated displays enabling amateurs to learn from others and share their experiences. This year the presentations from experts in various disciplines consisted of an EME presentation by Michael Coleman VK3KH, EMR and modelling software package by Doug McArthur VK3UM, VSWR by Peter Cossins VK3BFG, SDR TAPR radio by Dave VK3JKY of TTS Systems and an ACMA overview by Bruce Williams (inspector). On behalf of Icom, Theo Kalkandis presented one of their very latest amateur products, which created considerable interest.

SPARC is very grateful to its sponsors and the generous provision of door prizes that were won by people who had the lucky door tickets. The wonderful time had by the large number of attendees made for a very successful day. Excellent feedback received ensures that SPARC will continue to hold the Rosebud RadioFest.

We look forward to seeing you at our next RadioFest on Sunday, 30 November, 2014 which is the weekend after the Spring VHF-UHF Field Day.

73 from the SPARC committee and club members, and from VK3BSP. Tim VK3TJC.

Attend

Gippsland Gate Radio & Electronics Club 2014 Hamfest | 19 July

Spotlight on **SWLing**

Robin Harwood VK7RH
e *vk7rh@wia.org.au*

Winter is here and I have been relying increasingly on remote tuners for my shortwave monitoring. I still use both the Icom R-70 and Yaesu FRG-7700 yet find that remote tuners seemingly hear more than those in my shack. March certainly was one out of the box. In mid-February, the situation within Ukraine sharply escalated, with riots in Kiev, the capital city. There had been ongoing tension between Ukrainians and a sizeable Russian minority. The Russians predominate in the eastern half of the republic and the Ukrainians make up the central and western portion. Crimea, a peninsula at the bottom and on the Black Sea, was given to Ukraine in 1954 by Nikita Khrushchev, when part of the Soviet Union. Crimea was the battleground between Britain, Turkey and the Imperial Russian Empire in 1854-55. Towns such as Sebastopol and Balaclava were the sites of naval and military battles then and in the patriotic fervour of the day, new towns in Victoria were renamed after them. Some suburban streets in Melbourne also were named after them or after British generals involved in this mid-19th century battle.

160 years later and Crimea again became headlines. After the riots in Kiev which saw about 100 killed, a very shaky peace treaty was signed but within hours the then President fled to Moscow. Alarm bells must have gone off in the Kremlin as the Russian navy has a major naval base at Sevastopol. Also the majority of the population are ethnic Russians. Within days, agitation erupted in Crimea and quickly spread throughout Russia. Troops appeared and the Crimean parliament quickly passed resolutions to secede from Ukraine. A referendum was hastily conducted and overwhelmingly voted in favour of re-joining the Russian Federation.

This quickly escalated to a major European crisis as NATO regarded it as a threat to world security. There have been continuing fears of a possible Russian invasion of Ukraine with tensions also in the Baltic republics which formerly were part of the USSR. Moscow quickly annexed the Crimea and the Ukrainian navy was quickly either disarmed or absorbed into the Russian navy. Ground troops retreated to Ukrainian territory and thousands of ordinary Ukrainian citizens did likewise.

At the height of this crisis, Moscow made the amazing decision to completely terminate broadcasting on shortwave. April 1st was the cut-off date yet senders were silent before that. I would have thought it would have been in their interests to keep broadcasting and explain their rationale.

Although shortwave broadcasting may have disappeared, I have noted quite an escalation of HF activity related to this crisis. Various digital and analogue modes using Russian standards have multiplied plus voice traffic has been constantly monitored in both Europe and North America. Common voice channels are 11345 and 11360. Navy traffic primarily on CW is often heard on 8816. That infamous buzzer on 4625 is believed to be close to Ukraine or in Crimea itself. Also I have noted a spike in activity in the amateur bands, mostly on CW from the Ukraine. Listen down on 7005 and upwards around 0400. Prefixes are UT, UX and UR. It would also help if you consulted *www.qrz.com* to ascertain their specific QTH. Those single letter beacons on 7038 also have burst into traffic. 'C' is believed to be near Moscow and 'D' is located in Sevastopol. 'R' is in Izvetsk, in central Siberia.

The other major event in March was the odd disappearance of Malaysian 370 whilst en route to Beijing from KL. It now looks likely that it may have crashed into the Indian Ocean some 1,800 kilometres west of Perth. A huge recovery effort has been mounted and apparently liaison between the different services has been heard on 15962. I personally have not monitored it yet others have informed me that they have heard activity between 2000 and 0800, which corresponds to local daylight hours.

Bob Lambe VK7FKRL wrote to me to tell me he is the proud owner of an AR7 communications receiver. I hope he can get it going once more as I have very pleasant memories of listening when I first commenced listening. I remember how cumbersome those coil boxes were. Unfortunately the AR7 did not belong to me, as it was owned by a local technician who worked at the aerodrome and was on loan from the British. He relocated back not long after. The AR7 I think was modelled on the American AR88.

Well that is all for now. Shortwave is not dead! Signals are still there to be heard!

SOTA News

Allen Harvie VK3HRA and Bernard Petherbridge VK3AMB

The Summits on the Air (SOTA) program for amateur radio operators is continuing to increase in popularity and starting to push boundaries.

With VK8 coming on line at the start of March, the program in Australia has grown to seven associations VK1, VK2, VK3, VK4, VK5, VK8 and VK9. The SOTA bug is biting more and more newcomers, resulting in a noticeable increase in activity on VK summits. Chasers are also starting to expand their scope by chasing SOTA DX whilst others are learning to use CW to enhance, or chase, activations.

Whilst most operators will be aware of the joys of chasing DX or the advantages CW offers, this direction within SOTA is introducing and encouraging the use of old skills to a new group of amateurs with the added angle of using low powered and remote equipment. SOTA is about having fun and CW is just adding to this activity.

Weekly CW coaching sessions hosted by Ron VK3AFW and Tony VK3CAT are encouraging some old dogs to refresh their skills as well as bringing new activators and chasers alike up to speed with CW. CW activations are of particular interest to the operators who wish to venture deep into the forests due to the opportunities to reduce mass and maximise contacts with minimal power. Requiring just a little motivation, a basic QSO can be managed after a couple of weeks of focused memorising of the Morse code characters.

Whilst we have several operators using both voice and CW for activations, this development will lead to more CW only activations expanding the small but keen group (Warren VK3BYD and Wayne VK3WAM) currently actively exploiting minimalist equipment. Exploiting CW also enhances the DX opportunities for QRP operators.

SOTA CW sessions are being held on Thursdays at 8.30 pm EAST on 7045 kHz. All operators, new or experienced, are welcome. Check in to allow someone to practice for SOTA CW QSOs.

The SOTA DX quest started in November 2013 when several VK1 operators started activating their local summits with the aim of propagating signals along the grey-line to European countries. Andrew VK1NAM has continued to dominate the chase for DX. Not just into Europe and England, but also into America.

Whilst this activity is offering SOTA DX chasers the opportunity to log VK summits, a spin-off of this activity is EU and UK activators are reciprocating by activating summits in the same UTC time window to propagate signals along the grey-line to Australia. This has been heard to involve summit ascents before daylight, in the snow, with temperatures below zero. SOTA activators are a committed group of amateurs.

The propagation of signals on 20 m (14.300 to 14.350 MHz SSB) between mountain peaks in Europe and Australia is producing good solid contacts. Experiments conducted in December produced EU contacts as late as 0915 UTC or 2015 local AEDT. With the change of seasons moving from summer to autumn the grey-line window will change as the daylight hours shorten. The recommendation to anyone who wants to try SOTA DX is to start at least 60 minutes before sunset. If you don't know the sunset time for the summit, go to the SOTAwatch summit details page and check the sunset time details. Andrew's experiments are well documented in his blog. For more details on this exciting aspect of SOTA review Andrew's blog at *http://vk1nam.wordpress.com/*

New Shack Sloths this month have challenged the amount of time required to gain the thousand points required to claim Sloth status. VK2YK gained Sloth status in less than nine months and VK3FQSO, in what may be a new VK record, only started in January this year. This just shows the strength and levels of SOTA activity in VK and proves that all licence classes are equal in this activity.

Whilst the heat has all but subsided, rain and thunderstorms have started to cut some activations short, causing some to chase coffee whilst others stayed in tents until the weather improved.

The SA Parks Award first anniversary weekend activities (4-6 April 2014) also provided many contacts from summits into parks. Excellent examples of portable operations with different goals working collaboratively were heard.

As this column was prepared, the Easter and ANZAC day holidays were almost upon us, creating a period perfect for extended activations. Whilst true at any time, around any public holiday weekend it is usually very worthwhile keeping an eye on SOTAwatch and an ear out for the radio.

Plan ahead

Remembrance Day Contest | 16 & 17 August

Contests

James Fleming VK4TJF

The main contest in this month of May to get involved in is the Harry Angel Memorial Sprint contest. The date is 3rd May, 2014 from 1000 – 1146 UTC. At 106 minutes it is not a very long contest and should be well suited for those just starting out in contesting. The contest first started in 1999 to celebrate the life of Harry Angel VK4HA who at the time of his death (at 106 years) was the oldest amateur radio operator in Australia. It is strictly an 80 metre contest, so no need to work out any band plans. You can either do phone, CW, or mixed mode. Each contact is worth one point on phone and two points on CW. The focus here is to work as many stations as possible without regard to DX. Now many of you do not have big back yards, however if this is the case, then may I suggest that you could go portable. For example a 50 Ah battery would give you enough power for 106 minutes on, say, 50 watts. Then it's all just a matter of stringing up a dipole in the park somewhere. Don't forget to take your laptop because the VKCL logging program is the logging program to use for any Australian contest.

Contest Calendar for May 2014 - July 2014

Month	Date	Starts at	Spans	Name	Mode
May	**3rd - 4th**	**1000 UTC**	**106 mins**	**Harry Angel Memorial 80 m sprint**	**Phone/CW/Mixed**
	3rd - 4th	1200 UTC	24 hours	ARI International DX contest	CW/SSB/RTTY
	10th - 11th	1200 UTC	24 hours	Volta WW RTTY contest	RTTY
	10th - 11th	1200 UTC	24 hours	CQ-M International DX contest	CW/SSB
	17th - 18th	1200 UTC	24 hours	EU PSK DX contest	PSK63
	24th - 25th	0000 UTC	48 hours	CQ WW WPX contest	CW
June	**7th - 8th**	**0600 UTC**	**24 hours**	**VK Shires contest**	**CW/SSB**
	14th - 15th	1200 UTC	24 hours	Portugal Day contest	CW/SSB
	21st - 22nd	**0100 UTC**	**24 hours**	**Winter VHF/UHF Field Day**	**CW/SSB**
	21st - 22nd	0000 UTC	48 hours	All Asian DX contest	CW
	28th - 29th	1200 UTC	24 hours	Ukrainian DX Digi contest	RTTY/PSK63
July	5th - 6th	1100 UTC	24 hours	DL-DX RTTY contest	RTTY
	12th - 13th	1200 UTC	24 hours	IARU HF World Championship	CW/SSB
	19th - 20th	1200 UTC	24 hours	DMC RTTY contest	RTTY
	26th - 27th	1200 UTC	24 hours	RSGB IOTA contest	CW/SSB

So if you go portable or just use a dipole at home, this contest should be a lot of easy fun and an opportunity to get your feet wet in contesting. There is no division of power. Your signal strength only goes up by two 'S' points by increasing your power from 100 watts to 400 watts. The decrease in signal strength could easily be mitigated by antenna height, location, and operator skill, especially on the CW section. Since I don't have an amplifier I think that I may travel to my local park on a hill and sling up a dipole and do CW. Even with this set up low power and portable, I reckon that I will give those boys a run for the certificate this year. So if you are QRO or QRP, please keep the date and time in mind and give us contesters a shout. Even if you make only a few contacts please submit your log.

Over to you

AR in electronic form and the WIA website

To the President and Directors of the Wireless Institute of Australia,

I have emailed the WIA previously about my support for receiving *Amateur Radio* in electronic form. I have just recently gone to the WIA website to look at the example available. This highlighted a problem I have brought to the attention of the WIA web master previously; the WIA website is not mobile device compatible. It is nearly impossible to select the links in the drop-down menus using a mobile device and so unless I access the WIA website from my PC I could not view the electronic magazine. I have tried to access the electronic sample from an Android tablet, phone and an Apple iPod; in every case it was impossible to select the links in the drop-down menus.

In my previous communications with the WIA I asked if the website would be made mobile device friendly and was told that it would not. Given the proliferation of mobile devices and the increasing use by most people, especially radio amateurs, I believe that this is short-sighted and not in the spirit of our hobby where we strive to keep at the cutting edge of technology.

The WIA website is a major plank in the communication with members. If the site cannot be accessed from mobile devices then its usefulness is greatly diminished. I would request that the WIA revisit the decision not to make the WIA website mobile device friendly.

Regards,

Ray Buck VK4ZW

Winter VHF-UHF Field Day 2014

Contest Manager: John Martin VK3KM

Important Note

Last year the Board of the WIA received several requests to consider an alternative distance-based scoring system for the VHF-UHF Field Days. The issue was referred to the Contest Committee three times last year, and the Board has now decided that the next few VHF-UHF Field Days should be run with two alternative sets of rules.

The existing grid-based scoring will still apply, but there will also be a second set of rules with scoring based on distance. The two sets of rules will be known as "Division 1" and "Division 2". Entrants will be able to submit logs under the Division 1 rules, or under the Division 2 rules, or both. There will be a vote on which set of rules the entrants prefer. All entrants are asked to please include any comments along with their logs.

The main operational differences between the two sets of rules are:

Division 1 - Grid Locator scoring

Division 1 will be the existing scoring system as in past Field Days, based on grid locators.

Stations need to exchange 4 digit Maidenhead locators as usual (6 digit locators can be exchanged, but they are not essential). The score is based on totalling the number of locator squares worked and the number of contacts made.

Division 2 - Distance based scoring

Division 2 will be scoring based on distances worked.

Stations will need to exchange 6 digit locators or their station coordinates, to allow accurate distance calculations to be made. Scores will be based on the distance worked for each contact.

The rules given below are for Division 1 (the traditional grid locator scoring). Details of the proposed Division 2 rules are to be published separately.

Division 1 Rules

Dates: Saturday and Sunday 21 and 22 June 2014

Duration in all call areas other than VK6: 0100 UTC Saturday to 0100 UTC Sunday.

Duration in VK6 only: 0400 UTC Saturday to 0400 UTC Sunday.

Sections

A: Portable station, single operator, 24 hours.
B: Portable station, single operator, 8 hours.
C: Portable station, multiple operators, 24 hours.
D: Portable station, multiple operators, 8 hours.
E: Home station, 24 hours.
F: Rover station, 24 hours.

Operating periods: Stations entering the 8 hour sections may operate for more than 8 hours, and nominate which 8 hour period they wish to claim for scoring purposes.

Entering more than one section: If a portable station operates for more than 8 hours, it may enter both the 24 hour and 8 hour sections. If the winner of a 24 hour portable section has also entered the corresponding 8 hour section, his log will be excluded from the 8 hour section.

If a portable or rover station spends part of the contest period operating from his home station, he may also enter the home station section.

Rover stations: The Rover section is for all portable or mobile stations that operate from more than two locator squares or change locator squares more than twice.

Two operators: If two operators set up a joint station with shared equipment, they may choose to enter Section A, B or F as separate stations under their own callsigns, or Section C, D or F under a single callsign. If they enter as separate stations, they may not claim contacts with each other.

Multi-operator stations: Portable stations with more than two operators must enter Section C or D. Operators of stations in Section C or D may not make contest exchanges using callsigns other than the club or group callsign.

General Rules

One callsign per station. Operation may be from any location. A station is portable only if all of its equipment is transported to a place which is not the normal location of any amateur station. Portable stations may change location during the Field Day provided the station is dismantled and reassembled each time it moves. You may work stations within your own locator square. Repeater, satellite, EME or cross-band contacts are not permitted. Contacts using digital modes with computer decoding of the received signal are not permitted. Contacts made using modulated light are permitted, but they will be totalled separately and will not contribute to the final all-band score.

Except for CW, no contest operation is allowed below 50.150 MHz. Recognised DX calling frequencies must not be used for contest activity. Suggested procedure for SSB stations is to call on .150 or higher on each band, and QSY up to make the contest exchange.

Contest Exchange

RS (or RST) reports, a serial number, and your four digit Maidenhead locator. Six digit locators may be exchanged but are not compulsory. The Maidenhead locator is optional if it has already been exchanged in a previous contact during the Field

Day and neither station has moved since then.

Repeat Contacts

Stations may be worked again on each band after three hours. If either station is moved to a new location in a different locator square, repeat contacts may be made immediately. If the station moves back into the previous locator square, the three hour limit still applies to stations worked from that square.

Logs

Logs should cover the entire operating period and include the following for each contact: UTC time; frequency; station worked; serial numbers and locator numbers exchanged.

Scoring

For each band, score 10 points for each 4 digit locator square in which your station operates, plus 10 points for each locator square worked, plus 1 point per contact. Multiply the total by the band multiplier as follows:

6 m	2 m	70 cm	23 cm	Higher
x 1	x 3	x 5	x 8	x 10

Then total the scores for all bands.

Cover Sheet

The cover sheet should contain the names and callsigns of all operators; postal address; station location and Maidenhead locator; the section(s) entered; the scoring table; and a signed declaration that the contest manager's decision will be accepted as final.

Please use the following format for your scoring table below. In this example the operator has activated (operated from) one locator and worked four locators on each band.

A blank cover sheet, with scoring table, is available on the Field Day page of the WIA web site.

Entries

Electronic logs are preferred. Acceptable log formats include: ASCII text, RTF, DOC, DOCX, XLS, XLSX, MDB, PDF, or any Open Document format. **This year, please upload electronic logs to the Field Day web site.** Paper logs may be posted to the Manager, VHF-UHF Field Day, PO Box 2042, Bayswater Vic 3153. Logs must be received by **Monday, 7 July 2014**. Early logs would be appreciated.

Field Day web site: *http://www.wia.org.au/members/contests/vhfuhf/*

This site includes rules, results of all past VHF-UHF Field Days, cover sheets, scoring tables, and other information.

Band	Locators Activated	+	Locators Worked	+	QSOs	x	Multiplier	=	Band Total
	(10 points each)		(10 points each)		(1 point each)		See above		
6 m	10	+	40	+	40	x	1	=	90
2 m	10	+	40	+	30	x	3	=	240
70 cm	10	+	40	+	20	x	5	=	350
etc.									
Overall Total							=	**680**	

Important Note

Last year, the Board of the WIA received several requests to consider an alternative distance-based scoring system for the VHF-UHF Field Days. The issue was referred to the Contest Committee three times last year, and the Board has now decided that the next few VHF-UHF Field Days should be run with two alternative sets of rules.

The existing grid-based scoring will still apply, but there will also be a second set of rules with scoring based on distance. The two sets of rules will be known as "Division 1" and "Division 2". Entrants will be able to submit logs under the Division 1 rules, or under the Division 2 rules, or both. All entrants are asked to please include any comments along with their logs.

The main operational differences between the two sets of rules are:

Division 1 - Grid Locator scoring

Division 1 will be the existing scoring system as in past Field Days, based on grid locators.

Stations need to exchange 4 digit Maidenhead locators as usual (6 digit locators can be exchanged, but they are not essential). The score is based on totalling the number of locator squares worked and the number of contacts made.

Assessment of logs for Division 1 will be completed, as usual, by John Martin VK3KM.

Division 2 - Distance based scoring

Division 2 will be scoring based on distances worked.

Stations will need to exchange 6 digit locators or their station coordinates, to allow accurate distance calculations to be made. Scores will be based on the distance worked for each contact.

The rules given immediately below are for Division 1 (the traditional grid locator scoring). The rules for Division 2 follow.

Assessment of logs for Division 2 will be completed by Colin Hutchesson VK5DK.

Division 2 Rules

Dates: Saturday and Sunday 21 and 22 June 2014

As per Division 1.

Duration in all call areas other than VK6: 0100 UTC Saturday to 0100 UTC Sunday.

Duration in VK6 only: 0400 UTC Saturday to 0400 UTC Sunday.

Sections

As per Division 1.

A: Portable station, single operator, 24 hours.
B: Portable station, single operator, 8 hours.
C: Portable station, multiple operators, 24 hours.
D: Portable station, multiple operators, 8 hours.
E: Home station, 24 hours.
F: Rover station, 24 hours.

Award certificates will be made as follows:

Top scorers in A to F, any number of bands used.

Top scorers in A to F for operators using 2 m and 70 cm.

Top scorers in A to F for operators using any four bands.

General Rules

As per Division 1, with the following addition: Bonus points are awarded for contacts from one portable station to another portable station during the Field Day and for home stations to portable stations. See Scoring, below.

Contest Exchange

RS (or RST) reports, a serial number, and your six digit Maidenhead grid locator (for calculating distance between stations). The Maidenhead locator is optional if it has already been exchanged in a previous contact during the Field Day and neither station has moved since then.

Repeat Contacts

Stations may be worked again on each band after three hours. If either station is moved to a new location, which must be at least 10 km distant from then previous location, repeat contacts may be made immediately. If the station moves back into the previous location, the three hour limit still applies to stations worked from that location.

Logs

Logs should cover the entire operating period and include the following for each contact: UTC time; frequency; station worked; serial numbers and locator numbers exchanged.

A Field Day logging program to cover the Division 2 scoring system is planned for release before the contest. Look for an announcement on the WIA web site.

Scoring

All contacts are scored on the basis of one point per kilometre, multiplied by the scoring Multiplier for each band in the table below. A 200 km contact on 432 MHz would be 200 x 2.7 = 540 points. A 1000 km contact on 50 MHz would be 703 x 1.7 = 1195.1 points.

BONUS POINTS: Portable stations add 10 points for each portable-to-portable contact and add 5 points for each portable-to-home contact. Home stations add 5 points for each home-to-portable contact.

Then total the scores for all bands used on the Field Day. See Table 1.

Cover Sheet

The cover sheet should be clearly headed "DIVISION 2" and contain the names and callsigns of all operators; postal address; station location and six digit Maidenhead locator(s); the Division 2 section(s) entered; the scoring table; and a signed declaration that the contest manager's decision will be accepted as final.

Please use the following format for your scoring table. See Table 2.

A blank Division 2 cover sheet, with scoring table, is available on the Field Day page of the WIA web site, along with an example of a Division 2 cover sheet and completed scoring table.

Entries

Electronic logs are preferred. Acceptable log formats include: ASCII text, RTF, DOC, DOCX, XLS, XLSX, MDB, PDF, or any Open Document format. A Field Day logging program to cover the Division 2 scoring system is planned for release before the contest. Look for an announcement on the WIA web site.

This year, please upload electronic logs to the Field Day web site. Paper logs may be posted to the Manager, VHF-UHF Field Day, PO Box 2042, Bayswater Vic 3153. Logs must be received by **Monday, 7 July 2014**. Early logs would be appreciated.

Field Day web site: http://www.wia.org.au/members/contests/vhfuhf/

This site includes rules, results of all past VHF-UHF Field Days, cover sheets, scoring tables, and other information.

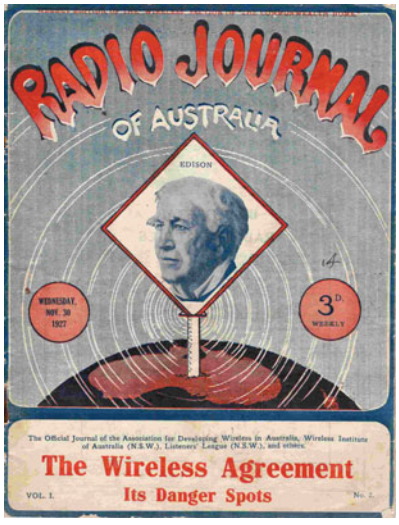
Band	Multiplier	Distance Scoring
50 MHz	1.7	1 point / km to 700 km; thereafter 1 point / 100km or part thereof
144 MHz	1	1 point / km to 700 km; thereafter 1 point / 100km or part thereof
432 MHz	2.7	1 point / km to 700 km; thereafter 1 point / 100km or part thereof
1296 MHz	3.7	1 point / km.
2.3/2.4 GHz	4.4	1 point / km.
3.4 GHz	5.4	1 point / km.
5.7 GHz	6.4	1 point / km.
10 GHz	7.4	1 point / km.
24 GHz & up	10	1 point / km.

Table 1

	Bonus Points								
Band	/P-/P	/P-H	H-/P	H-H	Sub-total	+	DX Scores	=	Total
50 MHz						+		=	
144 MHz						+		=	
432 MHz						+		=	
1296 MHz						+		=	
2.3/2.4 GHz						+		=	
3.4 GHz						+		=	
5.7 GHz						+		=	
10 GHz						+		=	
24 GHz & up						+		=	
								Grand Total	

Table 2

Hamads


RADIO JOURNAL
OF AUSTRALIA
EDISON
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3D. WEEKLY
The Official Journal of the Association for Developing Wireless in Australia, Wireless Institute of Australia (N.S.W.), Listeners' League (N.S.W.), and others.
The Wireless Agreement
Its Danger Spots
VOL. I.
No. 2.

WANTED – NATIONAL

Copies of Radio Journal of Australia magazine

The WIA Archive is seeking copies of the Radio Journal of Australia for copying and/or adding to the WIA Archive's shelves.

Little is known about this magazine. The WIA holds one copy only. Volume 1, Number 2 published on 30th November 1927 which contains 64 pages. The magazine claims to be the Official Organ of the Association for Developing Wireless in Australia, the Listeners' League (N.S.W.) and of importance to us, the Wireless Institute of Australia (N.S.W.).

The magazine contains articles of general radio interest, a comprehensive weekly radio guide for stations in N.S.W., S.A. Qld. and Vic. and some notes from the WIA, NSW Division. It was published in Sydney, presumably commencing on 23rd November 1927.

It is of interest to note that the magazine's Editor was George A. Taylor, the person responsible for calling the first meeting of Sydney wireless experimenters in March 1910 from which the WIA grew. Taylor was never known to be a member of the WIA, rather he returned to his interests in aviation and defence. Later he went on to form the Association for Developing Wireless in Australia, an organisation predominately representing those involved in commercial broadcasting.

There is little doubt that Australia had a colourful and heady start to those early days of radio communication and broadcasting - in all of its forms and magazines such as this provide a glimpse of that exciting pioneering time past!

Please contact WIA Historian, Peter VK3RV via email *vk3rv@wia.org.au* or c/o the National Office in Bayswater if you can help us locate copies of this magazine.

FOR SALE – VIC

FT-747 transceiver, with FM board fitted. Desk mike and H/H microphone. With manuals. AT11 MP auto antenna tuner with manual. Bencher low pass filter. Bencher antenna baluns. Lafayette TE-48 GDO. TRIO noise bridge. MFJ TNCR packet radio, model MFJ-1274. Alinco FM tranceiver DR-112, with manual. Osker SWR-200 meter. VK Powermaster PSU. Low power dummy load. 80 metre mobile antenna. Two coils coax cable. All items are in excellent condition and working OK. Is a complete station. Will not separate. $1200.00 the lot.

Contact Norm VK3JAL anytime on 03 5456 3122 or email *bell122@westnet.com.au*

Shack clear out:

1. FT-736R base station rig with modules for six metres, two metres 70cm. Piexx tone encoder/decoder fitted and does all repeaters. SSB, FM simplex, and repeater operation, narrow FM mode. AQRS system & T/R switched DC supply for masthead pre-amplifiers. Packet radio TNC & internal power supply. Memory system stores 115 memories storing up to 230 frequencies.

Documentation & operating manual included. Nice condition. S/N 6I 060035. Price is $1200, plus postage or pick up.

2. FT-767GX base station radio. FT-736R & FT-767GX look the same. HF, 50 MHz, two metres and 70 cm, and covers 12 bands (1.8 to 430 MHz). In-built automatic antenna tuner & SWR/power meter. General coverage receiver covers 100 kHz to 29.99999 MHz as well as VHF and UHF. Electronic keyer with speed control & CAT control. Nice condition. S/N 8F120149. Price is $1200 plus postage or pick up.

3. Yaesu SP-767P. Matching speaker for FT-767GX, has phone patch system and meter on face of unit. Nice condition. Price is $130 plus postage or pick up.

4. TR-751A base or mobile radio. FM & sideband. GC but has failed lights in the readout & some small scratches on the bottom. S/N 7050395. Price is $100, plus postage or pick up.

5. FT-1000MP base station radio, 100 W. Clean, non-smoker. Yaesu dynamic desk microphone MD-100 (MD-100a8x). Heaps of information included. S/N 6F100255.

Price is $1800 plus postage.

6. Yaesu external speaker SP-8, to suit the FT-1000MP. S/N 01043. Price is $150 plus postage.

7. AR2800 wide range monitor Scanner. No longer required due to upgrade. 12 volts. Some small scratches on the top & back but otherwise GC, instruction manual inc. S/N 11565. Price is $50:00 plus postage.

Contact Clifford M BilstonVK3CB, QTHR, phone 03 5346 1534, or *vk3cb@activ8.net.au*

WANTED – VIC

Relay for Alinco two metre amplifier, model ELH-230.

Battery valve type 3A5 twin triode.

Any information, including circuit diagram, for a Ramsey electronic frequency counter, type CT-50.

Word processor Citizen model CNB-10WP, working or not, but the LCD screen must be complete and undamaged.

Phone Brewster VK3YBW on 03 9527 2661, after 6.00 pm – if no answer, please leave a message.

FOR SALE – SA

The VK5JST Aerial Analyser (AR May 2006). Over 10,000 built, and still available from the Adelaide Hills Amateur Radio Society. For full details see *www.ahars.com.au*

Contributions to Amateur Radio

AR is a forum for WIA members' amateur radio experiments, experiences, opinions and news.

Your contribution and feedback is welcomed.

Guidelines for contributors can be found in the AR section of the WIA website, at http://www.wia.org.au/members/armag/contributing/

Email the Editor:
editor@wia.org.au

About Hamads

- Submit by **email (MUCH PREFERRED)** or if written and mailed please print carefully and clearly, use upper AND lower case.
- Deceased estates Hamads will be published in full, even if some items are not radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from those who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising on these pages Contact admanager@wia.org.au
- Copy to be received by the deadlines on page 1 of each issue of Amateur Radio.
- Separate forms for For Sale and Wanted items. Include name, address STD telephone number and WIA membership number.

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OUTbacker
www.outbacker.biz
The OB8 Classic, the go-anywhere mobile antenna - the unquestioned, all season, all climate, all terrain, HF mobile champion. This 1.8 metre tall antenna, (990mm when packed)covers 80-75-40-30-20-17-15-12-10m,no antenna tuning or base matching device is needed. When combined with OUTBACKER's, (TCCOSB) heavy duty, spring base, the OB8 makes a very rugged and professional installation, which will last for years. Maximum power:-300 Watts.

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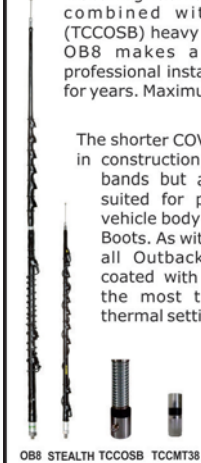

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WIA Functional Committees

The WIA is a membership organisation with a very wide range of complex functions and member services. Core functions and services are administrative in nature (general administrative functions, membership services, examination and callsign management, financial etc…) and are performed by salaried staff.

Volunteers perform a diverse range of highly specialist functions (ACMA liaison, Frequency Co-ordination, Standards liaison, Interference issues, technical support and training and assessment etc.). These volunteers provide the majority of member services, however they have been loosely organised and often overstretched.

The new committee system attempts to structure the WIA's non-core activities into 10 broad functional areas, each comprising a team of volunteers under the direction of the WIA Board. This structure is intended to spread the workload on our volunteers, improve communications between members and the WIA Board, improve services to members, and encourage more people to become involved in the WIA.

WIA Committee Charters

Spectrum Strategy Committee

Phil Wait VK2ASD (Board member – President); Geoff Atkinson VK3AFA (IARU Specialist); Peter Young VK3MV (Regulatory Counsel); Dale Hughes VK1DSH; Roger Harrison VK2ZRH; Doug McArthur VK3UM

- Perform all ITU and IARU liaison activities.
- Liaise with, and act as the 1st point of contact for, the ACMA.
- Advise the Board, and enact Board policy in relation to all radio communications regulatory issues and the LCD.
- Represent the WIA to State and Local Government
- Represent the WIA to Standards Australia
- Provide specialist technical advice and coordinate repeater and beacon licence applications and frequency allocation.
- Develop responses to significant and prolonged harmful interference issues affecting amateur radio operations.
- Provide an information resource for EMC/EMR issues.
- Administer the IARU Monitoring Service in Australia
- Provide a technical resource to other committees and the WIA Office.

Administrative & Finance Committee

John Longayroux VK3PZ - WIA Treasurer (Committee leader); Greg James VK2GRU - WIA Assistant Treasurer; David Williams VK3RU - WIA Company Secretary; Mal Brooks VK3FDSL - WIA Office Manager; Phil Wait VK2ASD - WIA Board member – President; Chris Platt VK5CP - WIA Board member - Vice President

- Responsible for the efficient and correct operation of the WIA office.
- Responsible for staffing and workplace safety.
- Provide a specialist administrative resource to the WIA office as required.
- Manage contractual agreements.
- Manage business relationships.
- Ensure compliance with the ACMA Business Rules
- Prepare yearly budgets
- Prepare quarterly financial reports for the Board
- Prepare independently reviewed YE financial reports and balance sheets for circulation to the membership prior to each Annual General Meeting.
- Manage insurances and to be responsible for currency of insurance policies.
- Maintain a complaints register.
- Ensure complaints are handled in accordance with WIA policy and any contractual agreements.

Communications, Marketing & Publications Committee

Robert Broomhead VK3DN - Committee Leader; Roger Harrison VK2ZRH - Deputy Leader

- Communication with members and the public:
- Communicate with the membership.
- Publicise WIA activities and initiatives.
- Develop strategies and resources for the promotion of Amateur radio to the public.
- Develop strategies and resources for the promotion of WIA membership to the Amateur community.
- Supervise and/or perform promotional activities.
- Co-ordinate the yearly AGM activities

Education Committee

Fred Swainston VK3DAC - Co-Leader; Owen Holmwood VK2AEJ - Co-Leader; Ron Bertrand VK2DQ; Mal Brooks VK3FDSL – Administration; Robert Broomhead VK3DN - Systems

- In association with the WIA's RTO and affiliated clubs offering training services, develop and administer the WIA's training and assessment systems.
- In association with the Spectrum Strategy Committee, develop and maintain the various licence syllabi and associated question banks.
- In association with the Community Support Committee and the RTO, develop and maintain the Emergency Communications Operator scheme.
- Ensure the confidentiality and security of all personal information, question banks and examination papers.

Affiliated Clubs Committee

Phil Wait VK2ASD - WIA Board member – President; Mal Brooks VK3FDSL - WIA Office Manager; Ted Thrift VK2ARA - Clubs Liaison officer; John Longayroux VK3PZ - WIA Treasurer

- Manage all arrangements between the WIA and WIA Affiliated Clubs
- In cooperation with the Administrative / Financial committee, manage the Club Insurance Scheme
- Encourage stronger relationships and communications flow between the WIA and WIA Affiliated Clubs
- Encourage increasing WIA membership ratios in Affiliated Clubs
- Manage the Club Grants Scheme
- Identify and bring regional Affiliated Club issues to the attention of the WIA Board

Community Service Committee

Bob Bristow VK6POP - Committee Leader; Fred Swainston VK3DAC; Greg James VK2GRJ; Ewan McLeod - WIA Director; Paul Hoffmann VK5PH

- Develop, promote and co-ordinate all WIA community support activities

Radio Activities Committee

Chris Platt VK5CP - WIA Board member; Geoff Atkinson VK3AFA

- All activities associated with actual radio operation, such as: contests, awards, distance records, QSL services, ARISS, AMSAT, ARDF etc.

Historical & Archive Committee

Peter Wolfenden VK3RV - Committee Leader; Roger Harrison VK2ZRH - Deputy Leader; Linda Luther VK7QP; Martin Luther VK7GN; Jenny Wardrop VK3WQ; Will McGhie VK6UU; Ian Morris VK3IFM; Drew Diamond VK3XU; David Wardlaw VK3ADW

- Develop, maintain and preserve the WIA's historical and archive collection
- Encourage access to the collection by WIA members and those seeking historical material for publication.

New Initiatives Committee

Phil Wait VK2ASD - Board member – President; Robert Broomhead VK3DN; Roger Harrison VK2ZRH; David Williams VK3RU - WIA Company Secretary

- Think-tank ideas and initiatives to advance amateur radio and WIA membership.
- On approval by the Board, run proof of concept trials.

IT Services Committee

Robert Broomhead VK3DN - Committee Leader; Tim Broomhead VK3KTB - Assistant Webmaster / Programmer; Marc Hillman VK3OHM - Awards System Developer

- Provide an IT resource to other committees and the WIA Board.
- Be responsible for the off-site data back-up of all IT systems information.
- To update and maintain the WIA website as required.
- Advise the Administrative / Financial committee in relation to the MEMNET Cloud Service contract.

2014 WIA Annual Conference

16, 17 & 18 May 2014, Sunshine Coast

The WIA is pleased to announce details for the **WIA 2014 Annual Conference** being held on the Sunshine Coast. The host club is the *Sunshine Coast Amateur Radio Club*, led by Richard VK4RY and Trent VK4TS.

The weekend program will commence on **Friday** evening at the *Alexandra Heads Surf Life Saving Club* and there will be several breakout options for like-minded amateurs to get together.

On **Saturday** morning the WIA Annual General Meeting followed by the Open Forum will be held in the *Shed* at *Aussie World* with lunch provided for all registered attendees.

On **Saturday** afternoon a technical symposium is being planned.

On **Saturday** evening the Annual Dinner will be held in the *Shed* at *Aussie World.*

Some of Saturday events

The WIA Annual General Meeting & Open Forum

Technical Symposium - Rescue

- EmCom interfacing WICEN to the real World
  Peter Schrader VK4EA
- Promoting your Club
  Scott Watson VK4CZ
- EMR Obligations
  Roger Harrison VK2ZRH
- Fund Raising for Clubs
  Richard Philp VK4RY
- 2 m meteor scatter
  Kevin Johnstone VK4UH

Sunday will feature a visit to the *Sunshine Coast* base of the *RACQ Rescue Helicopter* and various rescue venues on the *Mooloolaba Spit*, culminating in a visit to *Underwater World*.

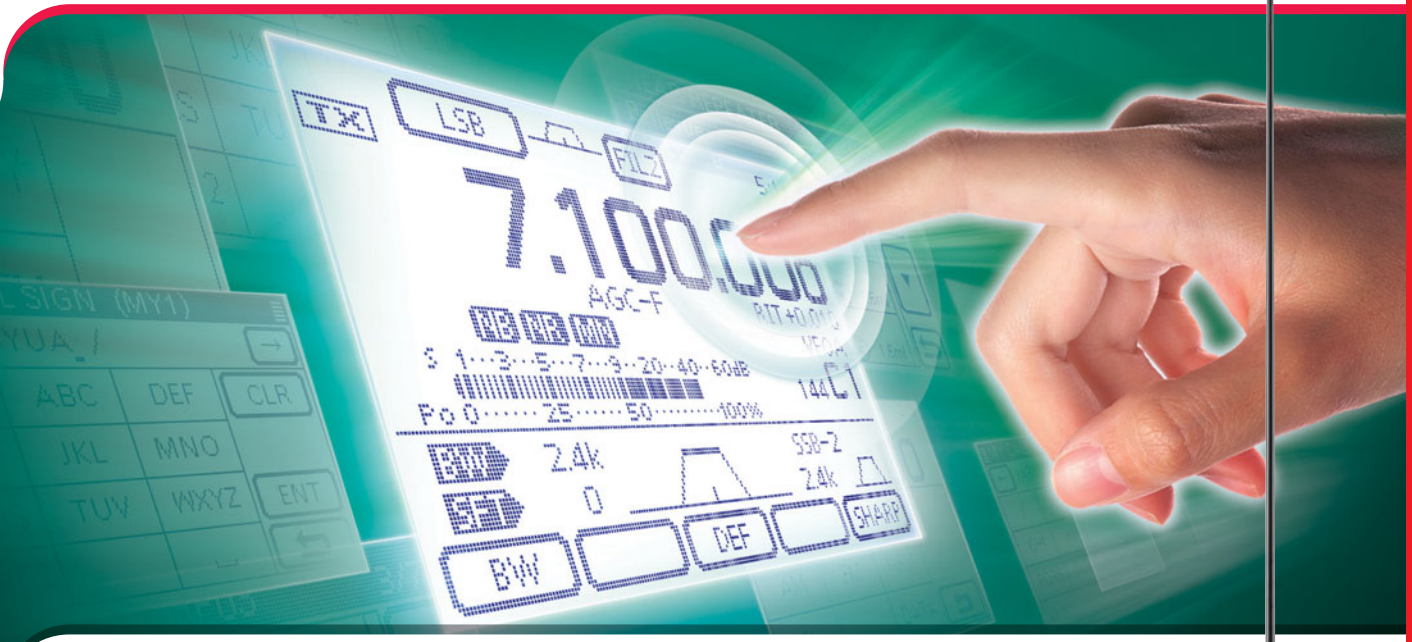
For those not travelling back to their home QTH on **Sunday** afternoon and who will be staying on **Sunday** evening, then the host club the *Sunshine Coast Amateur Radio Club* would like to invite you to a relaxing evening BBQ at *SCARC HQ*.

WIA Chartered Buses are being provided for transport between weekend venue locations. Please see the WIA website for booking details.

The cost for the **Sunday** evening BBQ will be $10 per person; alcoholic drinks will be BYO, soft drinks will be available. *Photos courtesy of Aussie World.*

For more information about accommodation and how to register online, visit our site:
http://www.wia.org.au/joinwia/wia/2014agm/

ICOM



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